

National Bureau of Standards  
Library, N.W. Bldg  
APR 5 1965

CRPL-F 247 PART B

Reference book not to be  
taken from the library.

FOR OFFICIAL DISTRIBUTION

PART B

SOLAR - GEOPHYSICAL DATA

ISSUED

MARCH 1965

U. S. DEPARTMENT OF COMMERCE  
NATIONAL BUREAU OF STANDARDS  
CENTRAL RADIO PROPAGATION LABORATORY  
BOULDER, COLORADO



## SOLAR - GEOPHYSICAL DATA

## CONTENTS

## I DAILY SOLAR INDICES

- (a) Relative Sunspot Numbers and 2800 Mc/s Solar Flux - January, February 1965
- (b) Graph of Sunspot Cycle
- (c) Final Sunspot Numbers (Zurich) 1964

## II SOLAR CENTERS OF ACTIVITY

- (a) Calcium Plage and Sunspot Regions - February 1965
- (b) Magnetic Classifications of Sunspots (Mt. Wilson) - February 1965
- (c) Provisional Coronal Line Emission Indices - January 1965

## III SOLAR FLARES

- (a-b) Optical Observations - February 1965
- (c) Flare Patrol Observations - February 1965
- (d-g) Solar X-ray Average Flux and Outstanding Events (NRL) - February, March 1964
- (h) Ionospheric Effects (SWF-SEA-SCNA-SPA-SES-SFD-Bursts) - January 1965
- (i) 30 Mc/s - Riometer Events (Frobisher Bay) - January 1965

## IV SOLAR RADIO WAVES

- (a) 2800 Mc/s Outstanding Occurrences (ARO-DRAO-Ottawa) - February 1965
- (b) 2800 Mc/s and 2700 Mc/s Outstanding Occurrence (ARO-DRAO-Ottawa) - February 5, 1965
- (c) 169 Mc/s Interferometric Occurrences (Nangay)
- (d) 108 Mc/s Outstanding Occurrences (NBS-Boulder) - February 1965
- (e) 108 Mc/s Outstanding Occurrence (NBS-Boulder) - February 5, 1965
- (f) 7.6-41 Mc/s Spectral Observations (HAO-Boulder) - February 1965
- (g-k) 9.1 cm Spectroheliograms (Stanford) - February 1965

## V COSMIC RAY INDICES

- (a) Neutron Monitor (Churchill - Climax - Dallas) - January 1965
- (b) Neutron Monitor (Deep River) - January 1965

## VI GEOMAGNETIC ACTIVITY INDICES

- (a) C, K<sub>p</sub>, A<sub>p</sub> and Selected Quiet and Disturbed Days - January 1965
- (b) Chart of K<sub>p</sub> by Solar Rotations - 1964, 1965

## VII RADIO PROPAGATION QUALITY INDICES

- (a) CRPL Quality Figures and Forecasts - January 1965
- (b) Graphs Comparing Forecasts and Observed Quality - High Latitude - January 1965
- (c-d) Graphs of Useful Frequency Ranges - January 1965

## VIII ALERT PERIODS AND SPECIAL WORLD INTERVALS

- (a) IQSY Alert Periods - February 1965



The descriptive text was republished in November 1964. Addenda have been given in the introduction to each of the CRPL-F Part B reports, December 1964 through February 1965.

Addendum: On page 8, line 3, of the November 1964 Descriptive Text, add Ottawa, Canada, to the group of observatories using the C. S. Warwick method of correcting measured areas of flares.

#### Riometer Absorption Events:

Beginning with data for January 1965, the periods of absorption are reported from the Frobisher Bay, Canada ( $63^{\circ}28'N$  $67^{\circ}23'W$ ) riometer instead of from the South Pole riometer. The equipment is operated by the Canadian Department of Transport in a cooperative program of the Central Radio Propagation Laboratory of the National Bureau of Standards and the Defence Research Telecommunications Establishment, Ottawa, Canada. The equipment operates at 30 Mc/s and uses a zenithal antenna of beamwidth  $\pm 30^{\circ}$  to the half-power points.

The table presents the values as described in the November 1964 Descriptive Text on p. 14, second paragraph, under Riometer Absorption Events.

Frobisher Bay has replaced the South Pole data because the latter program has been de-emphasized. The two stations are close in conjugacy so that the events reported by each are similar as to time of occurrence and intensity.

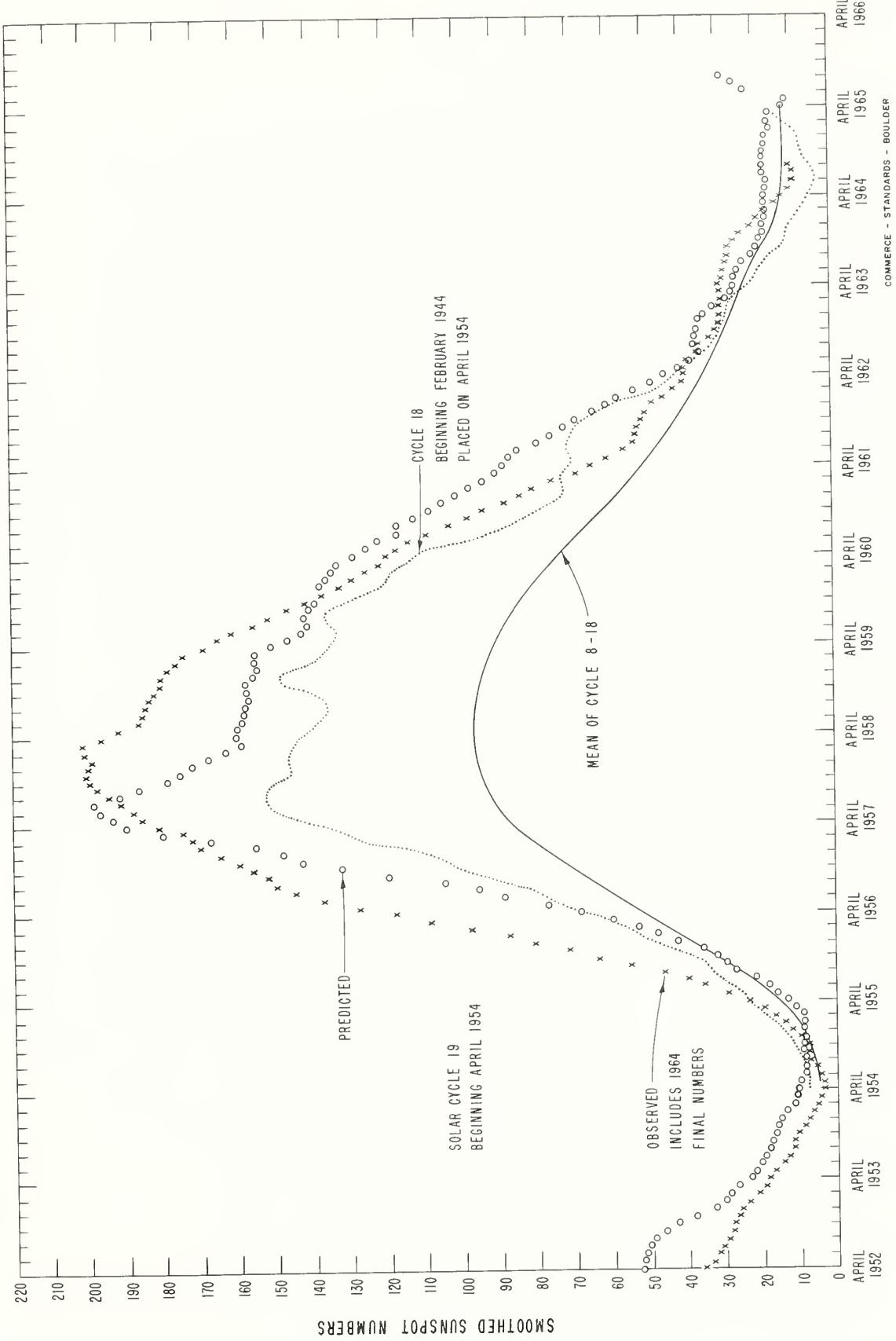
#### Solar Flares:

The more complete listing of November 1964 flares will be published at a later date. Data from several stations normally reporting have yet to be received. Therefore, it is inappropriate to publish a second listing of November flares at this time.

## DAILY SOLAR INDICES

Jan. 1965	American Relative Sunspot Numbers RA <sup>t</sup>
1	24
2	26
3	29
4	30
5	28
6	18
7	13
8	16
9	5
10	2
11	0
12	0
13	0
14	4
15	0
16	4
17	10
18	16
19	16
20	26
21	21
22	8
23	15
24	18
25	24
26	24
27	21
28	19
29	27
30	24
31	15
Mean:	15.6

Feb. 1965	Zürich Provisional Relative Sunspot Numbers R <sub>Z</sub>	Daily Values Solar Flux at 2800 Mc, Ottawa, Canada S	Solar Flux
		S	SA
1	14	78.5	76.2
2	13	79.1	76.8
3	13	78.7	76.4
4	13	77.4	75.2
5	10	76.2	74.1
6	23	76.2	74.1
7	23	77.3	75.2
8	17	75.4	73.4
9	23	75.4	73.4
10	17	75.9	73.9
11	17	73.7	71.8
12	23	73.1	71.2
13	25	72.4	70.6
14	16	71.9	70.1
15	23	72.6	70.8
16	15	73.2	71.4
17	8	73.4	71.6
18	8	72.2	70.5
19	0	72.3	70.6
20	0	71.4	69.8
21	7	71.6	70.0
22	0	71.9	70.3
23	0	73.0	71.5
24	13	74.5	72.9
25	15	74.2	72.7
26	22	73.8	72.3
27	24	76.1	74.6
28	18	76.3	74.8
Mean:	14.3	74.6	72.7



## ZURICH FINAL RELATIVE SUNSPOT NUMBERS

1964

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
1	0	0	27	10	7	8	7	9	7	17	9	0
2	14	0	8	0	0	8	0	20	8	12	8	0
3	8	0	13	13	0	8	0	17	8	0	8	0
4	7	0	7	0	10	8	8	9	0	0	0	0
5	13	0	7	10	14	0	10	8	0	0	0	7
6	17	0	0	11	11	0	8	7	0	14	7	0
7	20	10	15	15	11	14	7	7	7	20	7	0
8	16	13	9	13	10	0	0	0	20	16	7	8
9	13	18	8	10	7	7	0	0	12	11	0	7
10	15	9	0	9	7	7	0	7	11	0	0	10
11	19	7	14	8	7	14	0	8	11	0	0	12
12	20	0	23	7	0	22	0	21	20	0	9	16
13	27	0	40	7	0	12	0	23	18	0	7	10
14	24	8	32	7	9	18	10	36	11	0	17	17
15	22	13	29	7	17	24	12	30	0	0	8	10
16	16	17	28	7	17	23	11	30	0	0	16	17
17	20	21	20	13	23	13	9	19	0	0	15	27
18	7	15	8	7	11	22	8	9	0	12	19	.28
19	14	13	10	0	9	24	0	8	0	11	12	.30
20	11	23	11	9	7	19	0	7	0	10	19	.29
21	11	39	20	19	7	9	0	7	0	0	21	.23
22	11	42	32	17	18	0	0	0	0	0	8	.26
23	11	54	30	16	13	0	0	0	0	0	0	.16
24	18	44	27	23	11	0	0	0	0	7	8	.18
25	17	36	23	12	11	0	0	0	0	8	9	.19
26	10	34	20	7	14	0	0	0	0	7	0	.14
27	9	34	16	0	8	0	0	0	0	9	0	.19
28	24	34	14	0	8	0	0	0	0	0	7	.28
29	27	28	7	0	8	7	0	0	0	9	0	.38
30	22		7	0	9	7	0	0	7	16	0	.21
31	11		7		9		7	7		9		.19
Mean	15.3	17.7	16.5	8.6	9.5	9.1	3.1	9.3	4.7	6.1	7.4	15.1

COMMERCE - STANDARDS - BOULDER

Yearly Mean = 10.2



## CALCIUM PLAGUE AND SUNSPOT REGIONS

FEBRUARY 1965

Feb. 1965	LAT.	MCMATH PLAGE NUMBER	RETURN OF REGION	CALCIUM PLAGUE DATA						SUNSPOT DATA		
				CMP VALUES		HISTORY	AGE (ROTA- TIONS)	DATE FIRST SEEN (1)	DURA- TION (DAYS) (1)	CMP VALUES		HISTORY
				AREA	INT					AREA	COUNT	
1.0	N32	7658	New	400	2	b \ d	1	1/27	8	(40)	(2)	b — d
2.0	N33	7659	New	(100)	(1)	\ d	1	1/27	3			
2.0	S10	7671	New	(200)	(2)	b — d	1	2/6	≥1			
3.5	N23	7660	New	400	1.5	\ / \	1	1/28	13			
3.5	S02	7666	New	200	1	b — d	1	1/31	4			
4.0	N09	7661	New	2000	3	\ / \ / \	1	1/28	14			
5.5	N28	7664	7630	400	2.5	\ / \ / \	2	1/30	13			
5.6	N19	7665 (2)	7630	900	2	\ / \ d	2	1/30	10			
6.2	N08	7672	New	200	1.5	b \ d	1	2/6	3			
7.2	S19	7669 (2)	New	(100)	(1)	b — d	1	2/5	1			
7.3	N31	7667	New	(200)	(1.5)	b \ d	1	~2/2	4			
7.8	N29	7675	New	100	1	b — d	1	2/8	1			
8.5	N19	7673 (2)	New	(200)	(1.5)	b — d	1	2/6	1			
9.4	N01	7688	New	(200)	(2)	b — \	1	2/15	1			
10.1	N23	7682	New	(300)	(1.5)	b — \	1	2/13	3			
10.1	N18	7676 (2)	New	100	1.5	b — d	1	2/8	1			
10.2	N09	7668	New	(300)	(1)	\ \ d	1	2/3	3			
10.2	N32	7679 (2)	New	100	1	b — d	1	2/10	1			
10.3	N09	7683	New	(300)	(3)	b — \	1	2/13	3			
10.9	S29	7686 (2)	New	(200)	(1)	b — d	1	2/14	1			
11.5	N10	7670	New	(200)	(1)	\ — d	1	2/5	2			
12.6	S34	7680 (2)	New	100	1	b — d	1	2/10	1			
12.9	N24	7674	7643	1300	3	\ — \	2	2/6	≥12	(270)	(1)	b — \
12.9	S39	7687 (2)	New	100	1.5	b — d	1	2/14	1			
13.1	S07	7684 (2)	New	200	1.5	b — d	1	2/13	1			
13.4	S12	7678 (2)	New	(100)	(1)	b — d	1	2/8	1			
14.1	N08	7681	New	100	1.5	b — d	1	2/12	4			
15.2	N06	7685 (2)	New	100	1	b — d	1	2/13	1			
15.4	N30	7677	New	700	3	\ — \	1	≤2/10	≥11	(80)	(1)	b — d
15.4	N08	7689 (2)	New	100	2	b — d	1	2/15	1	(10)	(1)	b — d
18.4	S26	7695	New	300	2.5	b — \	1	~2/19	~4			
18.9	S03	7693 (2)	New	100	1	b — d	1	2/17	1	(10)	(1)	b — d
19.1	S49	7692 (2)	New	(200)	(2)	b — d	1	2/16	1			
19.1	N32	7691	7646	400	1	\ — d	3	2/16	5			
19.7	N04	7690 (2)	New	(100)	(1)	b — d	1	2/15	1			
22.5	S29	7701	New	100	1.5	b — d	1	2/22	~2			
23.0	N25	7703 (2)	New	100	1	b — d	1	2/23	1			
23.6	N05	7694	New	(200)	(1)	\ — d	1	2/17	4			
23.9	N04	7702	New	100	1.5	b — d	1	2/22	2			
24.2	S42	7698	New	200	1	b — d	1	2/21	3			
24.6	N27	7696	7655	700	2.5	\ — \	3	<2/19	>12			
25.0	N06	7715 (2)	New	(200)	(1.5)	b — \	1	3/2	1			
25.6	N24	7697	7655	500	1.5	\ — \	3	2/19	>12			
26.0	N05	7700 (2)	New	(200)	(1.5)	b — d	1	2/21	1			
26.2	S23	7699	New	(100)	(1)	b — d	1	2/21	2			
26.5	S11	7705 (2)	New	100	1	b — d	1	2/26	1			
27.3	N05	7713 (2)	New	(100)	(1.5)	b — d	1	3/1	1			
28.1	S25	7706 (2)	New	100	1	b — d	1	2/26	1			

COMMERCE - STANDARDS - BOULDER

- (1) Due to very poor weather conditions, no calcium spectro heliograms were secured at the McMath-Hulbert Observatory on February 1, 7, 9, 18, 24, and 25, 1965.
- (2) These very small and ephemeral plagues last for only one day.

## M T. WILSON MAGNETIC CLASSIFICATIONS OF SUNSPOTS

IIb

FEBRUARY 1965

Feb. 1965	TIME MEAS. UT	LAT	MER DIST	TYPE	Feb. 1965	TIME MEAS UT	LAT	MER DIST	TYPE
1	1940	N08	E28	$\beta p$	13	1640	N10 N21 N29	W45 W15 E20	$\alpha f$ $\alpha p$ $\alpha p$
2	1805	N07	E16	$\beta \gamma$					
3	No Obs				14	1800	N21 N29	W28 E07	$\alpha p$ $\alpha p$
4	2210	N07	W17	$\alpha p$	15	2220	N21 N29	W45 W09	$\alpha p$ $\alpha p$
5-6	No Obs								
8	0005	N08	W58	$\alpha p$	16	1815	N21 N30	W55 W18	$\alpha p$ $\alpha p$
	1810	N22 N08 N21	E59 W69 E49	$\alpha p$ $\alpha p$ $\alpha p$	17	No Obs			
9	No Obs				18-23	No Spots			
10	2200	N21 N30	E20 E55	$\alpha p$ $\alpha p$	24-25	No Obs			
11	No Obs				26	1820	S04 N08	E37 E50	$\alpha p$ $\alpha p$
12	2330	N20 N08 N30	W06 E17 E29	$\beta p$ $\alpha f$ $\alpha p$	27 28	No Obs 1640	S04 N07	E13 E25	$\beta$ $\alpha p$

COMMERCE - STANDARDS - BOULDER

Erratum: In CRPL-F 243 Part B, issued November 1964, the spot group reported at S13 W13 on October 7, 1964, was erroneously marked as a new cycle group. It was an old cycle group. The longitude also was incorrect. It should be W27, not W13.

## PROVISIONAL CORONAL LINE EMISSION INDICES

JANUARY 1965

CMP Jan 1965	North East quadrant (observed 7 days earlier)				South East quadrant (observed 7 days earlier)				South West quadrant (observed 7 days later)				North west quadrant (observed 7 days later)				
	G <sub>6</sub>	G <sub>1</sub>	R <sub>6</sub>	R <sub>1</sub>	G <sub>6</sub>	G <sub>1</sub>	R <sub>6</sub>	R <sub>1</sub>	G <sub>6</sub>	G <sub>1</sub>	R <sub>6</sub>	R <sub>1</sub>	G <sub>6</sub>	G <sub>1</sub>	R <sub>6</sub>	R <sub>1</sub>	
1	x	12	18	22	x	4	14	21	0	3	0	19	24	5	8	19	22
2	x	x	x	x	x	6	14	x	3	6	28	31	7	12	32	40	
3	x	x	x	x	x	4	x	x	0	0	17	20	3	6	13	24	
4	x	x	x	x	x	x	x	x	1	3	23	26	9	12	19	22	
5	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
6	28	73	x	x	0	0	x	x	x	x	x	x	x	x	x	x	
7	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
8	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
9	x	x	x	x	x	x	x	x	0	0	x	x	35	64	x	x	
10	23	41	16	17	6	10	11	14	5	9	12	14	21	31	16	24	
11	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
12	10	15	17	22	14	36	14	15	11	15	5	7	8	9	11	13	
13	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
14	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
15	10	22	14	17	0	0	12	16	x	x	x	x	x	x	x	x	
16	5	6	34	48	7	10	26	35	0	0	6	8	15	54	20	34	
17	0	0	20	34	1	3	13	18	5	5	6	28	36	10	16	21	
18	4	6	4	6	5	9	5	9	x	x	x	x	x	x	x	x	
19	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
20	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
21	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
22	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
23	20	34	x	x	0	0	x	x	x	x	x	x	x	x	x	x	
24	17	65	12	16	0	0	0	12	16	2	4	x	x	7	11	x	
25	0	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
26	9	11	16	22	5	9	11	14	x	x	x	x	x	x	x	x	
27	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
28	x	x	x	x	x	x	x	x	x	x	x	x	x	26	76	19	
29	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
30	2	4	16	20	0	0	13	17	x	x	x	x	x	x	x	x	
31	9	11	19	25	3	5	16	24	x	x	x	x	x	x	x	x	

x = no observations

• = yellow line emission

a = index computed from low weight data

commerce - standards - boulder

# SOLAR FLARES

FEBRUARY 1965

OBSERVATORY	DATE FEB 1965	OBSERVED UNIVERSAL TIME		MAX PHASE	APPROX. LAT.	M-MATH PLAZZ DIST	DURA TION MINUTES	IM POR TANCE	MEASUREMENTS			MAX INT %	REMARKS	
		START	END						OBS. COND.	TIME UT	MEAS AREA Sq. Deg	CORR. AREA Sq. Deg		
ARCE	02	0920	E	1000	D	1517	N08	E22	7661	1-	1	0950	*4.9	55
SACP	02	1510		1521		1622	N07	E15	7661	1-	2	1616	*3.3	32
MCMA	02	1614		1616		1629	N08	E12	7661	1-	2	1616	*5.0	50
SACP	02	1620	E	1719	D	1711	N07	E13	7661	1-	1		*75	28
SACP	02	1656		1719		1753	N08	E13	7661	1-	1		*74	18
SACP	02	1722		1731		1744	N06	E15	7661	1-	1		*29	28
SACP	02	1733		1800	U	1905	N07	E11	7661	1-	1		*33	32
SACP	02	1853		1917		1905	N08	E11	7661	1-	1		1.08	19
SACP	02	1916		1939		1931	N08	E12	7661	1-	1		*16	19
LOCK	02	1919		1945		1930	N10	E10	7661	1-	1		*20	20
MMMA	02	1924		1929	D	2054	N08	E10	7661	1-	1	P	1929	20
LOCK	02	2043		2109		2050	N09	E09	7661	1-	1	C	2054	60
LOCK	02	2050		2057		2052	N07	E10	7661	1-	1	C	1.04	18
LOCK	02	2131		2201		2140	N08	E09	7661	1-	1	C	2140	20
LOCK	02	2306		2326		2313	N06	E08	7661	1-	1	C	2313	H
MITK	02	2311	E	2318		2312	N07	E09	7661	7	E	1	*50	J
LOCK	03	0025		0034		0029	N08	E08	7661	1-	1	C	0029	70
MITK	03	0027		0031		0029	N07	E08	7661	1-	1	C	0046	50
LOCK	03	0041		0053		0046	N09	E09	7661	1-	1	C	0046	10
MCMA	03	1715		1732		1720	N08	E03	7661	1-	1	C	1720	L
ARCE	04	0855	E	0925	D	N08	W05	7661	1-	2	0905	1.70	76	
SACP	05	1613		1629		1621	N06	W24	7661	1-	1	C	*99	17
SACP	05	1750		2000	U	1808	N08	W25	7661	130	U	2	1.51	30
MCMA	05	1750		2006	D	1810	N08	W25	7661	136	D	2+	7.50	F5
ARCE	06	0942	E	1000	D	N10	W33	7661	1-	4	0942	*56	70	
MITK	07	0330		0347		0336	N11	W42	7661	1-	1	C	1826	450
LOCK	07	1819		1848		1826	N09	W51	7661	29	1	C	1826	20
MITK	07	2333		2346		2338	N22	W52	7660	1-	1	C	1845	F
LOCK	08	1831		1903		1845	N30	E90	7667	1-	1	P	1846	50
MCMA	08	1833		2000	D	1846	N31	E90	7667	1-	1	C	2038	20
LOCK	08	2029		2117		2038	N05	W65	7661	1-	1	C	*50	K
ARCE	10	0925	E	1013	D	1022	N20	W90	7660	48	D	1	1002	409
CATA	10	1020		1045	D	N18	W90	7660	25	D	1		1022	10
LOCK	11	1913		1937		1924	N29	E41	7677	1-	1	C	1924	30
LOCK	11	2110		2127		2116	N29	E41	7677	1-	1	C	2116	30
KAND	15	1333		1338			S22	W85		1-				L
LOCK	16	1700		1716		1707	N32	E01	7677	1-	1	C	1707	H
LOCK	16	2006		2019		2010	S04	E45		1-	1	C	2010	20
LOCK	16	2244		2257		2249	S01	E27	7693	1-	1	C	2249	10
LOCK	17	2316		2336		2323	N23	W60	7674	1-	1	C	2323	10

## SOLAR FLARES

FEBRUARY 1965

OBSERVATORY	DATE FEB 1965	OBSERVED UNIVERSAL TIME			APPROX. LAT.	MER DIST	LOCATION MECHAGE PLACE REGION	DURA- TION MINUTES	IM- POR- TANCE	OBS. COND.	TIME UT	MEASUREMENTS			REMARKS	
		START	END	MAX PHASE								MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX WIDTH Ha	MAX INT. %	
SACP	17	2319	2332	2328	N25	W64	7674	1-	C	•46	•88				16	
KAND	18	1016	1025	1022	N31	E90	7696	1-								
KAND	18	1026	1032	1028	N26	E90	7696	1-								
SACP	18	1116	E	1121	N02	W50	7694	1-								
KAND	18	1535	E	1547	N05	E66	7694	1-								
SACP	18	1759	E	1837	S31	W13	7695	1-	C	1815	•29	•50	•17		H	
LOCK	18	2044	E	2102	N43	W30	2054	1-	C	2054	•20	•20	10		H	
LOCK	18	2147	E	2205	N20	W32	2152	1-	C	2152	•30	•40	10		H	
LOCK	18	2220	E	2232	N02	E58	7694	1-	C	•40	•40	•40	20		H	
SACP	18										•38	•55	•55	17		
MCMA	19	1635	E	1650	1638	S23	W13	7695	1-	C	1638	•20	•20			DH
LOCK	20	2218	E	2238	2225	N30	E13	7697	1-	C	2225	•20	•20	10		
SACP	20	2256	E	2307	2259	N27	E64	7697	1-	C	2302	•40	•53	18		
LOCK	20	2256	E	2310	2302	N26	E59	7697	1-	C	•70	•70	•70	10		
SACP	20															
LOCK	23	0653	E	0808	0713	S05	E90	7704	75	D	2017	•30	1•50	20		
KAND	23	2010	E	2030	2017	N32	W90		1-	C	2033	•30	•50	10		
LOCK	24	2026	E	2041	2033	S03	E61	7704	1-	C						
SACP	26	2123	E	2142	2130	N16	E54	7707	1-	C	•12	•18	17			
MITK	27	0553	E	0604	0556	S15	E35	7709	1-	C						
CATA	27	0845	E	0915	D	0846	S28	E74	7710	9	D	0846	•16	•42	155	G
ISTA	27	0855	E	0904	D	N35	E21		1-	C						
ARCE	27	1015	E	1020	D	N36	E72	7710	1-	C	2	1015	•26	•80		
ARCE	27	1015	E	1020	D	N24	E47	7707	1-	C	2	1015	•65	1•06		
ARCE	27	1015	E	1020	D	S01	E30	7704	1-	C	2	1015	•20	•23		
MCMA	27	1319	E	1417	D	N32	E62	7710	1-	C	2	1350	•40	•40	S	
LOCK	28	2010	E	2025	2015	N30	E44	7710	1-	C	2015	•40	•50	10		
LOCK	28	2042	E	2104	2047	N21	E22	7707	1-	C	2047	•50	•50	20		
MCMA	28	2044	E	2057	2048	N23	E29	7707	1-	C	2048	•40	•50	20		ES

Errata: In CRPL-F 244 Part B, page IIIi, for the two OTTA flares on August 30, 1964 the area measurements should be in the MEAS. AREA not CORR. AREA column.

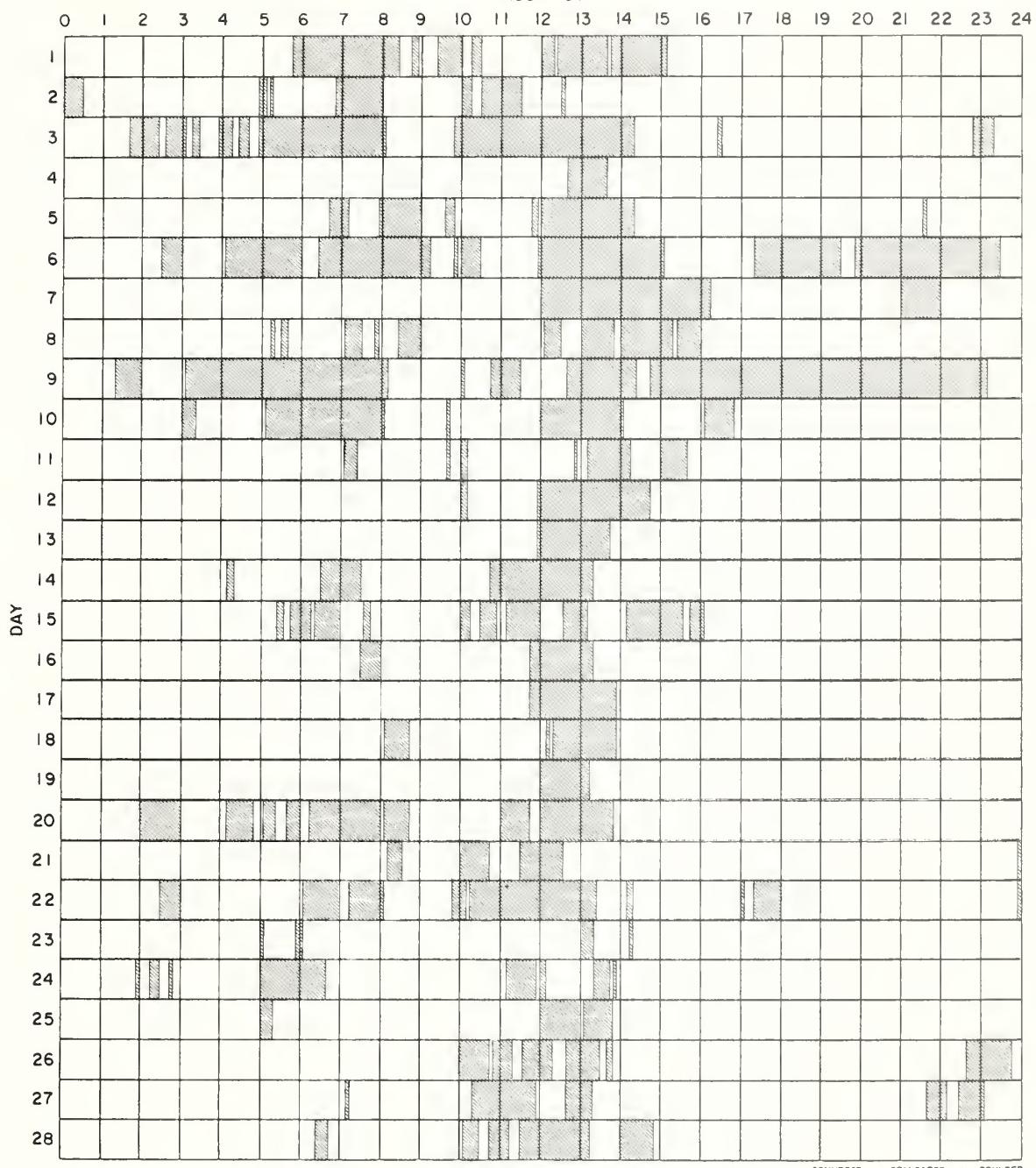
In CRPL-F 246 Part B, pages IIIa, IIIb, remove 'O' from remarks column for ARCE flares on January 5, 6, 7, 20, and 22, 1965. Also remove 'B', G or D' entries under OBS. COND for KAND flares on January 6, 18, 21, 22, and 31, 1965.

**INTERVALS OF NO FLARE PATROL OBSERVATIONS**  
**PROVISIONAL**

IIIc

FEBRUARY 1965

HOUR - UT



COMMERCE - STANDARDS - BOULDER

Observatories Included:

Arcetri  
Bucharest  
Catania

Herstmonceux  
Ikomasan  
Istanbul

Kandilli  
Lockheed  
Manila

McMath-Hulbert  
Mitaka  
Ondrejov

Sacramento Peak  
Tortosa  
Wroclaw

## SOLAR RADIATION MONITORING SATELLITE

## AVERAGE X-RAY FLUX

NRL

FEBRUARY 1964

	AVERAGE	X-RAY FLUX	
Date	44-60A	8-12A	0-8A
Feb. 1	$2.7 \times 10^{-2}$	$<1.7 \times 10^{-4}$	$<1.3 \times 10^{-4}$
2	$2.3 \cdot 10^{-2}$	$<1.5 \cdot 10^{-4}$	$<1.2 \times 10^{-4}$
3	$2.3 \times 10^{-2}$	$<1.4 \times 10^{-4}$	$<1.2 \times 10^{-4}$
4	$2.5 \times 10^{-2}$	$<1.2 \cdot 10^{-4}$	$<1.1 \times 10^{-4}$
5	$2.5 \times 10^{-2}$	$<1.2 \cdot 10^{-4}$	$<1.1 \times 10^{-4}$
6	$2.6 \times 10^{-2}$	$<1.1 \times 10^{-4}$	$<1.0 \times 10^{-4}$
7	$2.5 \times 10^{-2}$	$<1.1 \cdot 10^{-4}$	$<1.0 \times 10^{-4}$
8	$2.6 \times 10^{-2}$	$<1.1 \times 10^{-4}$	$<1.0 \times 10^{-4}$
9	$2.6 \times 10^{-2}$	$1.2 \times 10^{-4}$	$<1.0 \times 10^{-4}$
10	$2.7 \times 10^{-2}$	$1.7 \times 10^{-4}$	$<1.0 \times 10^{-4}$
11	$2.8 \times 10^{-2}$	$3.3 \times 10^{-4}$	$<1.0 \times 10^{-4}$
12	$2.9 \times 10^{-2}$	$2.4 \times 10^{-4}$	$<1.1 \times 10^{-4}$
13	$2.8 \times 10^{-2}$	$1.8 \cdot 10^{-4}$	$<1.2 \cdot 10^{-4}$
14	$2.8 \times 10^{-2}$	$<1.7 \times 10^{-4}$	$<1.2 \times 10^{-4}$
15	$2.8 \times 10^{-2}$	$<1.8 \times 10^{-4}$	$<1.3 \times 10^{-4}$
16	$2.5 \times 10^{-2}$	$<2.0 \times 10^{-4}$	$<1.5 \cdot 10^{-4}$
17	$2.6 \times 10^{-2}$	$<2.1 \times 10^{-4}$	$<1.6 \times 10^{-4}$
18	$2.5 \times 10^{-2}$	$<2.2 \times 10^{-4}$	$<1.7 \times 10^{-4}$
19	$2.5 \times 10^{-2}$	$<2.3 \times 10^{-4}$	$<1.8 \times 10^{-4}$
20	$2.6 \times 10^{-2}$	$<2.4 \times 10^{-4}$	$<1.7 \times 10^{-4}$
21	$2.6 \cdot 10^{-2}$	$<2.5 \times 10^{-4}$	$<1.7 \times 10^{-4}$
22	$3.3 \times 10^{-2}$	$9.0 \times 10^{-4}$	$<1.7 \times 10^{-4}$
23	$4.2 \times 10^{-2}$	$6.5 \times 10^{-4}$	$<1.7 \times 10^{-4}$
24	$4.2 \times 10^{-2}$	$7.6 \times 10^{-4}$	$<1.7 \times 10^{-4}$
25	$4.0 \cdot 10^{-2}$	$6.6 \times 10^{-4}$	$<1.6 \times 10^{-4}$
26	$4.1 \times 10^{-2}$	$6.1 \times 10^{-4}$	$<1.5 \times 10^{-4}$
27	$4.2 \times 10^{-2}$	$5.9 \times 10^{-4}$	$<1.4 \times 10^{-4}$
28	$4.3 \times 10^{-2}$	$6.7 \times 10^{-4}$	$<1.3 \times 10^{-4}$
29	$4.1 \times 10^{-2}$	$6.4 \times 10^{-4}$	$<1.2 \times 10^{-4}$

OUTSTANDING EVENTS					
Date	Times of Observation	44-60A	8-12A	0-8A	Flare
Feb. 11	1410 1421	$3.1 \times 10^{-2}$	$0.5 \times 10^{-3}$	$0.2 \times 10^{-3}$	1-
22	2209 2223 2351 0005	$6.3 \times 10^{-2}$ $4.8 \times 10^{-2}$	$1.3 \times 10^{-3}$ $0.8 \times 10^{-3}$	$1.0 \times 10^{-3}$ N*	1-
23	0135 0149 0658 0714 2019 2033 2035 2045 2218 2233 2234 2246	$4.5 \times 10^{-2}$ $6.0 \times 10^{-2}$ $5.2 \times 10^{-2}$ $4.8 \times 10^{-2}$ $4.6 \times 10^{-2}$ $6.2 \times 10^{-2}$	$0.7 \times 10^{-3}$ $1.2 \times 10^{-3}$ - $0.7 \times 10^{-3}$ $0.8 \times 10^{-3}$ $0.8 \times 10^{-3}$	$0.5 \times 10^{-3}$ $1.2 \times 10^{-3}$ - - $0.6 \times 10^{-3}$ $0.8 \times 10^{-3}$	1-
24	0634 0650	$5.0 \times 10^{-2}$	$1.1 \times 10^{-3}$	-	1-
26	0201 0206	$4.0 \times 10^{-2}$	$0.8 \times 10^{-3}$	$0.5 \times 10^{-3}$	
28	1757 1813 2300 2315	$4.4 \times 10^{-2}$ $4.5 \times 10^{-2}$	$0.7 \times 10^{-3}$ $0.8 \times 10^{-3}$	$0.4 \times 10^{-3}$ $0.4 \times 10^{-3}$	
29	0431 0443 0617 0631	$4.0 \times 10^{-2}$ $3.7 \times 10^{-2}$	$0.4 \times 10^{-3}$ $0.4 \times 10^{-3}$	$0.4 \times 10^{-3}$ $0.4 \times 10^{-3}$	

\* N means signal observed in noise.

COMMERCE - STANDARDS - BOULDER

# SOLAR RADIATION MONITORING SATELLITE

IIIc

## AVERAGE X-RAY FLUX

NRL

FEBRUARY 1964

TIMES OF OBSERVATION											
1 0725 2738	11 (cont'd)	0646	0653	15 (cont'd)	1119	1131	20 (cont'd)	0557	0613	25 (cont'd)	0352 0403
1239 1256		1040	1056		1929	1945		0630	0647		0530 0547
1427 1438		1221	1239		2115	2131		0817	0833		0643 0658
1756 1808		1410	1421		2248	2318		1004	1042		0718 0733
1947 1953		1603	1610					1829	1845		1729 1745
2 1249 1307		2037	2053	16	0035	0052		1914	1928		1816 1830
1439 1446					0217	0236		2016	2030		2051 2118
1805 1818	12	0326	0342		0359	0407		2137	2218		2052 2308
		0507	0514		0425	0442		2336	0007	26	0017 0036
3 1112 1117		0655	0703		0523	0532	21	0118	0135		0201 0219
1258 1325		0815	0831		0543	0610		0301	0325		0347 0410
1440 1454		0915	0919		0739	0808		0449	0456		0507 0523
1813 1826		1050	1116		0926	1009		0606	0623		0540 0555
4 1121 1138		1240	1246		1129	1155		0639	0655		0727 0743
1308 1337		1419	1433		1310	1325		0753	0806		0913 0930
1450 1504		1901	1917		1500	1510		0826	0842		1059 1115
1638 1652		2047	2103		1641	1655		1038	1052		1738 1754
1823 1836		2318	2332		1753	1808		1653	1708		1826 1841
5 0619 0634		2357	0013		1937	1951		2035	2040		2056 2128
1133 1147	13	0009	0024		2021	2038		2146	2227		2248 2317
1312 1343		0156	0211		2208	2224		2346	0001	27	0027 0106
1647 1653		0334	0351		2301	2325					0210 0216
1835 1844		0519	0525	17	0042	0101	22	0003	0017		0222 0235
6 0956 1007		0913	0928		0226	0245		0139	0144		0356 0419
1140 1156		1059	1125		0531	0543		0615	0632		0549 0613
1327 1355		1419	1433		0715	0732		0649	0705		0736 0752
1843 1849		1604	1616		0949	1006		1703	1717		0923 0939
7 0048 0101		1912	1926		1140	1204		1847	1903		1603 1617
1149 1206		2056	2111		1802	1817		2034	2049		1748 1802
1338 1346		2234	2245		1947	2003		2118	2132		1930 1950
1508 1524		2328	2341		2135	2149		2209	2225		2018 2033
1707 1720	14	0017	0033		2218	2233		2351	0010		2111 2138
1854 1904		0205	0218		2258	2337	23	0132	0149		2251 2315
8 0644 0701		0344	0350	18	0052	0110		0314	0329	28	0035 0052
1013 1027		0528	0533		0234	0257		0512	0528		0217 0222
1159 1228		0553	0608		0422	0427		0658	0714		0232 0244
1532 1538		0648	0703		0540	0553		0845	0901		0525 0541
1716 1723		0834	0848		0612	0628		1032	1055		0558 0615
9 0510 0521		0922	0938		0758	0815		1857	1912		0745 0801
0838 0847		1108	1134		0959	1029		2019	2059		1117 1133
1021 1038		1251	1307		1140	1155		2208	2246		1611 1626
1208 1222		1439	1449		1957	2009					1757 1813
1351 1407		1617	1624		2142	2146	24	0007	0019		1936 1959
1540 1547		1736	1749		2314	2333		0141	0201		2106 2148
1728 1733		1918	1935	19	0059	0118		0323	0335		2300 2314
2018 2036		2005	2018		0245	0307		0521	0537		2322 2325
		2108	2122		0436	0451		0634	0650	29	0043 0101
		2247	2309		0621	0637		0708	0719		0228 0234
10 0307 0324					0825	0840		1720	1733		0348 0404
1218 1247					0954	1011		1806	1818		0431 0443
1550 1600	15	0017	0043		2128	2157		1907	1922		0617 0631
1736 1742		0217	0246		2327	2343		2028	2109		1808 1822
2028 2041		0352	0414					2227	2258		1937 2009
2337 2353		0538	0617								
		0657	0713	20	0109	0128	25	0008	0027		2124 2138
11 0147 0152		0730	0757		0253	0258		0153	0210		2144 2158
0459 0506		0931	0947		0438	0500		0337	0342		2318 2347

## SOLAR RADIATION MONITORING SATELLITE

## AVERAGE X-RAY FLUX

NRL

MARCH 1964

Date	AVERAGE X-RAY FLUX		
	44-60A	8-12A	0-8A
Mar. 1	$3.9 \cdot 10^{-2}$	$5.6 \cdot 10^{-4}$	$< 1.1 \cdot 10^{-4}$
2	$3.5 \cdot 10^{-2}$	$4.4 \cdot 10^{-4}$	$< 1.1 \cdot 10^{-4}$
3	$3.1 \cdot 10^{-2}$	$2.8 \cdot 10^{-4}$	$< 1.0 \cdot 10^{-4}$
4	$3.0 \cdot 10^{-2}$	$3.6 \cdot 10^{-4}$	$< 1.0 \cdot 10^{-4}$
5	$2.9 \cdot 10^{-2}$	$< 1.1 \cdot 10^{-4}$	$< 1.0 \cdot 10^{-4}$
6	$2.9 \cdot 10^{-2}$	$< 1.1 \cdot 10^{-4}$	$< 1.0 \cdot 10^{-4}$
7	$3.0 \cdot 10^{-2}$	$1.2 \cdot 10^{-4}$	$< 1.0 \cdot 10^{-4}$
8	$3.0 \cdot 10^{-2}$	$< 1.3 \cdot 10^{-4}$	$< 1.0 \cdot 10^{-4}$
9	$2.8 \cdot 10^{-2}$	$< 1.4 \cdot 10^{-4}$	$< 1.1 \cdot 10^{-4}$
10	$2.8 \cdot 10^{-2}$	$< 1.5 \cdot 10^{-4}$	$< 1.2 \cdot 10^{-4}$
11	$2.8 \cdot 10^{-2}$	$1.8 \cdot 10^{-4}$	$< 1.5 \cdot 10^{-4}$
12	$3.1 \cdot 10^{-2}$	$2.4 \cdot 10^{-4}$	$< 1.7 \cdot 10^{-4}$
13	$3.3 \cdot 10^{-2}$	$< 3.2 \cdot 10^{-4}$	$< 2.2 \cdot 10^{-4}$
14	$3.3 \cdot 10^{-2}$	$< 5 \cdot 10^{-4}$	$< 3 \cdot 10^{-4}$
15	$3.7 \cdot 10^{-2}$	$< 10 \cdot 10^{-4}$	$< 4 \cdot 10^{-4}$
16	$4.3 \cdot 10^{-2}$	$< 17 \cdot 10^{-4}$	$< 7 \cdot 10^{-4}$

OUTSTANDING EVENTS					
Date	Times of Observation	44-60A	8-12A	0-8A	Flare
March 14	1631 1643	$4.6 \cdot 10^{-2}$	$< 6 \cdot 10^{-4}$	$< 3.5 \cdot 10^{-4}$	1
	1641 1647	$4.1 \cdot 10^{-2}$	$< 6 \cdot 10^{-4}$	$< 3.5 \cdot 10^{-4}$	1
	1646 1700	$5.8 \cdot 10^{-2}$	$< 6 \cdot 10^{-4}$	$< 3.5 \cdot 10^{-4}$	1
	1637 1652	$> 26 \cdot 10^{-2}$	Photom-	$6.8 \cdot 10^{-3}$	2
	1651 1706	$> 26 \cdot 10^{-2}$	eter not	$6.8 \cdot 10^{-3}$	2
	1652 1706	$> 24 \cdot 10^{-2}$	viewing	-	2
	1706 1719	$> 26 \cdot 10^{-2}$	sun due	$4.7 \cdot 10^{-3}$	2
	1834 1848	$12 \cdot 10^{-2}$	to large	$< 8 \cdot 10^{-4}$	2
	1838 1852	$12 \cdot 10^{-2}$	Aspect	$< 8 \cdot 10^{-4}$	2
	1854 1908	$12 \cdot 10^{-2}$	Angle	$< 8 \cdot 10^{-4}$	2
	2028 2037	$8 \cdot 10^{-2}$		$< 8 \cdot 10^{-4}$	2

COMMERCE - STANDARDS - BOULDER

## SOLAR RADIATION MONITORING SATELLITE

IIIg

## AVERAGE X-RAY FLUX

NRL

MARCH 1964

TIMES OF OBSERVATION											
1 0048 0110	5 (cont'd)	0655	0711	9 (cont'd)	0359	0415	12 (cont'd)	1943	2018		
0234 0241		0841	0858		0545	0601		2122	2141		
0430 0447		1707	1722		0735	0748		2304	2328		
0544 0558		1840	1909		0918	0932	13	0054	0119		
0618 0634		2027	2058		1557	1613		0249	0306		
0804 0821		2218	2247		1734	1759		0436	0453		
1445 1459					1910	1948		0623	0639		
1629 1645	6	0102	0115		2104	2137		0808	0825		
1816 1831		0145	0201		2238	2301		0955	1008		
1947 2018		0330	0347	10	0022	0038		1302	1317		
2137 2209		0704	0721		0221	0238		1625	1637		
2317 2335		0858	0907		0408	0424		1800	1839		
		1345	1359								
2 0055 0125		1716	1731		0557	0611		1943	2028		
0244 0310		1847	1919		1420	1436		2130	2152		
0440 0456		2037	2108		1607	1622		2313	2345		
0813 0830		2217	2234		1739	1809	14	0445	0502		
1945 2028		2240	2256		1927	1944		1313	1329		
2143 2201		2355	0011		2007	2125		1631	1700		
2339 2345					2130	2302		1806	1848		
	7	0007	0019		2317	2331		2009	2037		
3 0449 0506		0142	0155	11	0032	0047		2146	2225		
0636 0652		0527	0543		0240	0254		2322	2338		
1648 1704		0900	0907		0419	0434		2355	0008		
1829 1850		1541	1555		0934	0945	15	0131	0144		
1958 2038		1725	1741		1429	1445		0318	0334		
2157 2227		1856	1928		1617	1631		0455	0512		
2334 2352		2047	2058		1806	1819		1508	1522		
		2102	2118								
4 0120 0126		2150	2201		1933	2008		1639	1710		
0459 0515		2227	2243		2117	2135		1824	1843		
0832 0848		2249	2306		2255	2319		2018	2028		
1128 1134				12	0043	0056		2149	2156		
1511 1527	8	0005	0015		0153	0210		2333	2347		
1657 1712		0349	0406		0240	0310	16	0144	0150		
1819 1859		0536	0553		0355	0407		0653	0707		
2006 2048		0723	0739		0427	0443		1145	1159		
2159 2236		1547	1600		0613	0630		1517	1532		
2342 0001		1858	1938		0759	0816		1637	1719		
		2051	2128		0945	0959		1834	1908		
5 0008 0024		2237	2252		1439	1454		2023	2037		
0129 0135	9	0013	0043		1626	1641		2155	2212		
0321 0338		0206	0229		1746	1819		2343	2356		

## IONOSPHERIC EFFECTS OF SOLAR FLARES

SHORT WAVE RADIO FADEOUTS                    SUDDEN PHASE ANOMALIES  
 SUDDEN COSMIC NOISE ABSORPTION            SUDDEN ENHANCEMENTS OF SIGNAL  
 SUDDEN ENHANCEMENTS OF ATMOSPHERICS      SUDDEN FREQUENCY DEVIATIONS  
 SOLAR NOISE BURSTS AT 18 Mc/s

JANUARY 1965

JAN 1965	UNIVERSAL TIME			TYPE SWF IMP	IMPORTANCE					BUR	WIDE SPREAD INDEX	STATIONS	KNOWN FLARE
	START	END	MAX		ABS	SCNA	SEA	SPA	SES				
03	1006	1011								1	1	RO	
03	1011	1023	1013	4							1	RO	
03	1114	1117									1	RO	
28	0215	0248	0227	G							4	MA+CA	0217
28	0217	0310D	0222								1	MA(NPG43)	0217
28	0310	0350	0315								1	MA(NPG36)	
29	2129	2131	2130							03	1	BO(WWV10-0.3WWV15-0.2)	2128
31	2012	2015	2013							05	1	BO(WWV10-0.5WWV15-0.2)	2010

COMMERCE - STANDARDS - BOULDER

SCNA-SEA-burst records from MC, HA and MA not as yet received for January 1965.

## RIOMETER EVENTS

III

JANUARY 1965

FROBISHER BAY

30 Me's

JAN. 1965	START UT	END UT	MAX. UT	MAX. ABSORP. db, (tenths)	NO. OF PEAKS	JAN. 1965	START UT	END UT	MAX. UT	MAX. ABSORP. db, (tenths)	NO. OF PEAKS
1	*					20	***	2150	2129	3	1
2	*					21	*				
3	0040	0148	0052	34	2	22	0640	0750	0645	17	2
3	1618	***	1644	20	7	22	1050	1314	1139	4	1
4	*					23	**				
5	**					24	**				
6	2314	0410	0330	12	2	25	**				
7	1400	1733	1612	5	3	26	**				
8	**					27	**				
9	1212	1628	1356	7	1	28	**				
10	**					29	0204	0252	0213	14	2
11	*					30	**				
12	**					31	**				
13	0132	0412	0200	40	9						
14	1010	1653	1446	8	6						
15	1100	1521	1236	7	1						
16	**										
17	*										
18	*										
19	0302	0447	0350	11	5						

COMMERCE - STANDARDS - BOULDER

\* No Event

\*\* No Data

\*\*\* Uncertain

**SOLAR RADIO EMISSION  
OUTSTANDING OCCURRENCES**

FEBRUARY 1965

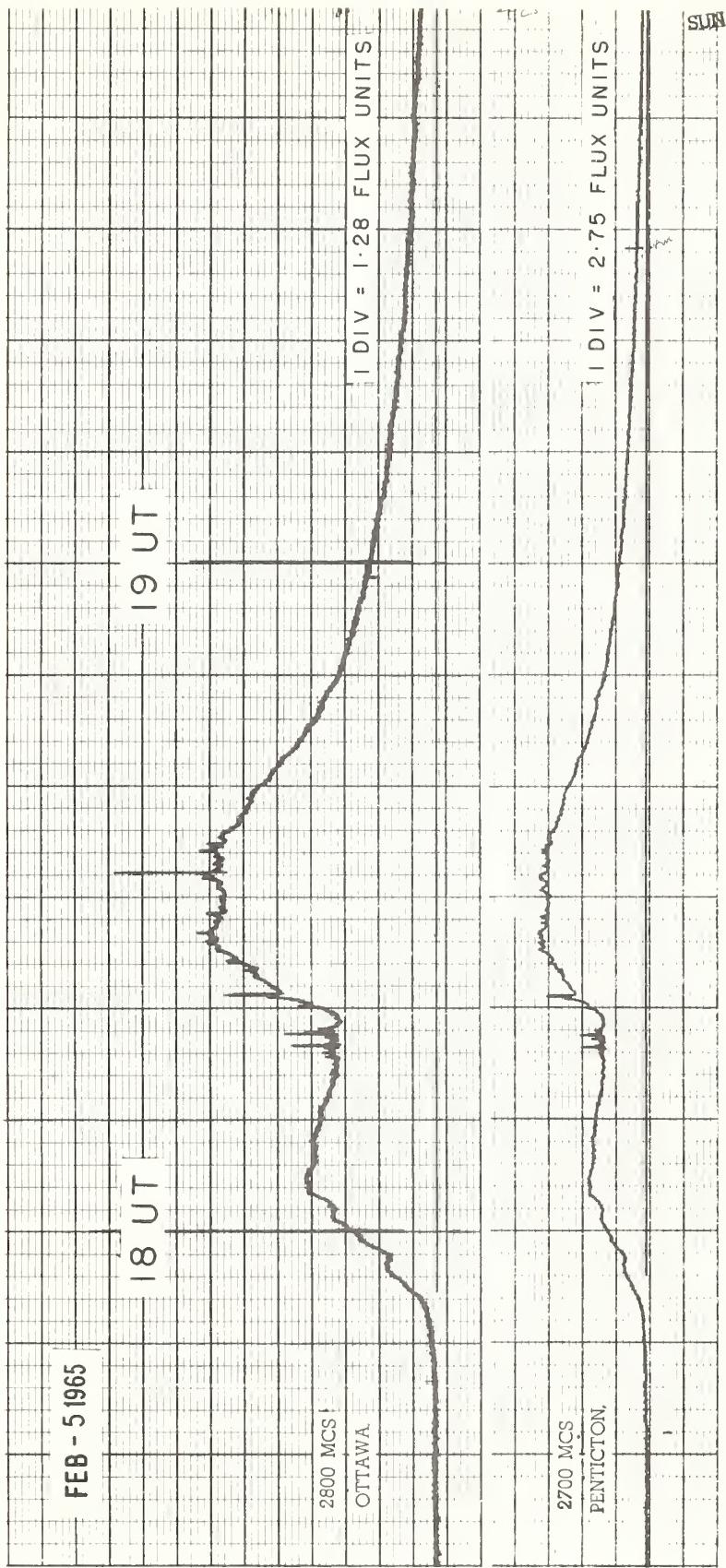
ARO-DRAO (OTTAWA)

2800; 2700 Mc/s

FEB 1965	U R A N E	DESCRIPTIVE TYPE	START UT	DURATION HRS MIN	MEAN FLUX	MAXIMUM		REMARKS
						TIME	FLUX	
2	3	Simple 3	1740	30	0.5	1747	1.0	
5	6	Complex f	1753	1 37	19.0	1826	43.0	
	4	Post increase		1 30	3.0		6.0	
7	3	Simple 3 f	1821	2 15	2.2	1823	4.4	

COMMERCE - STANDARDS - BOULDER

**SELECTED 2800 Mc/s SOLAR NOISE BURSTS**  
**ARO - OTTAWA, CANADA**



COMMERCIAL - STANDARDS - BOULDER

IVb

SOLAR RADIO EMISSION  
INTERFEROMETRIC OBSERVATIONS

NANÇAY

169 Mc/s

The equipment at Nançay is being modified and data on 169 Mc/s will be unavailable until further notice.

CONFERENCE - STANDARDS - BULLETIN

**SOLAR RADIO EMISSION  
OUTSTANDING OCCURRENCES**

IVd

FEBRUARY 1965

NBS BOULDER

108 Mcs

Feb. 1965	TYPE	START UT	TIME OF MAXIMUM UT	DURATION MINUTES	INTENSITY
2	3	1858.5	1859.2	2.0	3
2	3	2031.1	2031.6	0.8	2
2	2	2050.7	2052.0	2.1	2
2	8	2210.0	2210.5	3.0	3
2	2	2247.5	2247.5	4.5	2
5	9A	1757	1800.0	5.0	3
5	9B	1802	1824	110	2
8	7	1650	--	130	1

NOMINAL TIMES OF OBSERVATION

FEBRUARY 1965

NBS BOULDER

108 Mcs

Feb. 1965	HOURS OF OBSERVATION U.T.	HOURS OF INTERFERENCE U.T.	Feb. 1965	HOURS OF OBSERVATION U.T.	HOURS OF INTERFERENCE U.T.
1	1414-0004	2259-0004	16	1357-0022	
2	1413-0005		17	1356-0023	1549-1718
3	1412-0006		18	1354-0024	
4	1411-0008		19	1353-0025	1600-1645
5	1410-0009		20	1352-0026	
6	1409-0010	1658-1833; 1923-1926	21	1350-0028	
7	1408-0011	1856-1930	22	1349-0029	1545-2023
8	1407-0012		23	1348-0030	
9	1406-0014		24	1346-0031	
10	1404-0015		25	1345-0032	
11	1403-0016		26	1343-0033	
12	1402-0017		27	1342-0034	1437-1440
13	1401-0018		28	1340-0036	
14	1400-0019				
15	1358-0021				

COMMERCE - STANDARDS - BOULDER

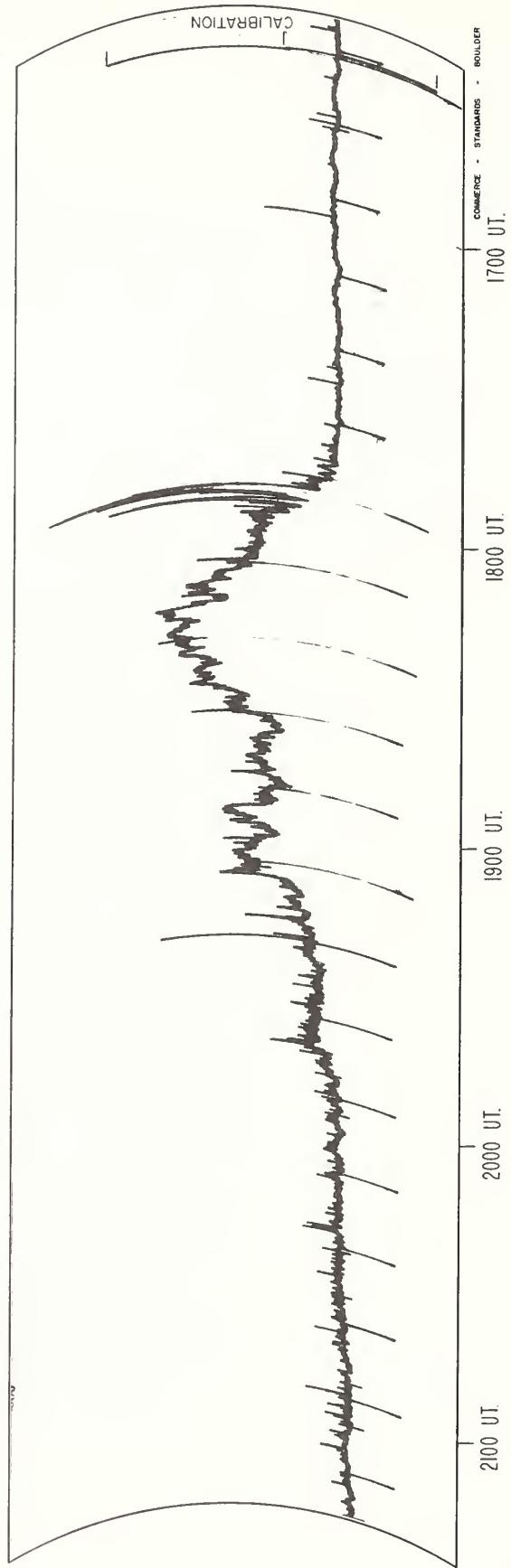
IVe

SOLAR NOISE BURSTS

FEBRUARY 5, 1965

BOULDER

108 Mc/s



**SOLAR RADIO EMISSION  
SPECTRAL OBSERVATIONS**

IVf

FEBRUARY 1965

**High Altitude Observatory  
Boulder**

**7.6-41 Mc/s**

Date Feb 1965	Bursts			Frequency Range (Mc/s)	Date Feb 1965	Bursts			Frequency Range (Mc/s)
	Type	Time (U.T.)	Intensity			Type	Time (U.T.)	Intensity	
1 Feb	no observ.	1400-1733		21-41	2 Feb	III	2250:45-2251:30	1-	21-41
	III	2216:30-2216:45	1-			III	2308:30-2308:45	1-	24-36
	III	2224:30-2225	1			III	2312:45-2313:15	1-	30-41
	III	2241:45-2242:30	1			III	2313:30-2313:45	1-	30-41
	III	1512-1512:15	1-			III	2311:15-2311:30	1+	16-41
	III	1512:30-1512:45	1			III	2312:15-2312:30	1-	22-41
	III	1529:15-1530	1+			no observ.	1400-1540		
	III	1613:30-1614:15	1			III	1559-1559:45	1-	21-41
	III	1614:30-1614:45	1-			III	1904:45-1905:30	1	20-41
	III	1615-1615:45	1			no observ.	1755-1900		
2	III	1706:45-1707	1	24-41	5	no observ.	1543-1755		
	III	1707:15-1707:45	1+			III	1750-1759:15	1+	24-41
	III	1708:15-1708:45	1			II	1800-1817	2	14-41
	III	1709:30-1709:45	1-			IV	1810-1905	1	22-41
	III	1710-1710:15	1-			continuum	1905-2100	1	22-41
	III	1744:30-1744:45	1-			no observ.	1400-2330		
	III	1747-1747:15	1-			no observ.	1400-1615		
	III	1818:30-1818	1-			no observ.	1400-1700,		
	III	1824:15-1824:45	1-				2100-2330		
	III	1859:30-1901:45	1+			III	2223:30-2223:45	1	23-41
3	III	1949:15-1949:45	1-	26-41	7	III	2223:45-2229:15	1	23-41
	III	2005-2005:15	1-			no observ.	1400-1900		
	III	2031:30-2030:15	1+			III	1722-1722:15	1-	15-41
	III	2051-2053	2			III	1809-1809:15	1-	18-41
	III	2054:45-2055	1-			III	1910:30-1919:45	1-	21-41
	III	2059:45-2100:15	1-			III	2151:45-2152	1-	22-37
	III	2103-2103:15	1-			no observ.	1500-1639		
	III	2128:30-2129	2			III	2005:45-2006:15	1-	32-41
	III	2206:15-2206:30	1-			no observ.	1500-2330		
	III	2207:45-2208:15	1			no observ.	1500-2330		
4	III	2210:30-2211:30	2	15-41	26	no observ.	1500-1940		
	III	2212-2212:30	1-						
	III	2230-2230:30	1						
	III	2247:45-2248:15	1						
	III	2249:45-2250:15	1+						

COMMERCE - STANDARDS - BOULDER

## SOLAR RADIO EMISSION SPECTROHELIograms

FEBRUARY 1965

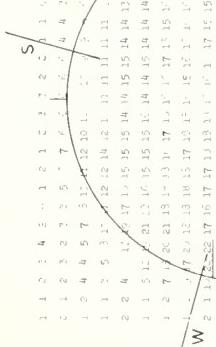
STANFORD

# SOLAR RADIO EMISSION SPECTROHELIOPHOTOGRAMS

FEBRUARY 1965

STANFORD

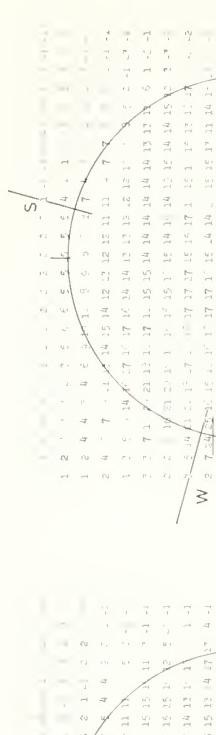
9.1 cm



Stanford, 1965 Feb 01, 09:00 UT; Brightness Unit 1 for 10.3 %.



Stanford, 1965 Feb 01, 12:00 UT; Brightness Unit 1 for 10.3 %.



Stanford, 1965 Feb 01, 15:00 UT; Brightness Unit 1 for 10.3 %.



Stanford, 1965 Feb 02, 09:00 UT; Brightness Unit 1 for 10.3 %.



Stanford, 1965 Feb 02, 12:00 UT; Brightness Unit 1 for 10.3 %.



Stanford, 1965 Feb 02, 15:00 UT; Brightness Unit 1 for 10.3 %.



Stanford, 1965 Feb 03, 09:00 UT; Brightness Unit 1 for 10.3 %.



Stanford, 1965 Feb 03, 12:00 UT; Brightness Unit 1 for 10.3 %.



Stanford, 1965 Feb 03, 15:00 UT; Brightness Unit 1 for 10.3 %.



Stanford, 1965 Feb 04, 09:00 UT; Brightness Unit 1 for 10.3 %.



Stanford, 1965 Feb 04, 12:00 UT; Brightness Unit 1 for 10.3 %.



Stanford, 1965 Feb 04, 15:00 UT; Brightness Unit 1 for 10.3 %.



Stanford, 1965 Feb 05, 09:00 UT; Brightness Unit 1 for 10.3 %.



Stanford, 1965 Feb 05, 12:00 UT; Brightness Unit 1 for 10.3 %.



Stanford, 1965 Feb 05, 15:00 UT; Brightness Unit 1 for 10.3 %.



Stanford, 1965 Feb 06, 09:00 UT; Brightness Unit 1 for 10.3 %.



Stanford, 1965 Feb 06, 12:00 UT; Brightness Unit 1 for 10.3 %.



Stanford, 1965 Feb 06, 15:00 UT; Brightness Unit 1 for 10.3 %.



Stanford, 1965 Feb 07, 09:00 UT; Brightness Unit 1 for 10.3 %.



Stanford, 1965 Feb 07, 12:00 UT; Brightness Unit 1 for 10.3 %.



Stanford, 1965 Feb 07, 15:00 UT; Brightness Unit 1 for 10.3 %.



Stanford, 1965 Feb 08, 09:00 UT; Brightness Unit 1 for 10.3 %.



Stanford, 1965 Feb 08, 12:00 UT; Brightness Unit 1 for 10.3 %.



Stanford, 1965 Feb 08, 15:00 UT; Brightness Unit 1 for 10.3 %.



Stanford, 1965 Feb 09, 09:00 UT; Brightness Unit 1 for 10.3 %.



Stanford, 1965 Feb 09, 12:00 UT; Brightness Unit 1 for 10.3 %.



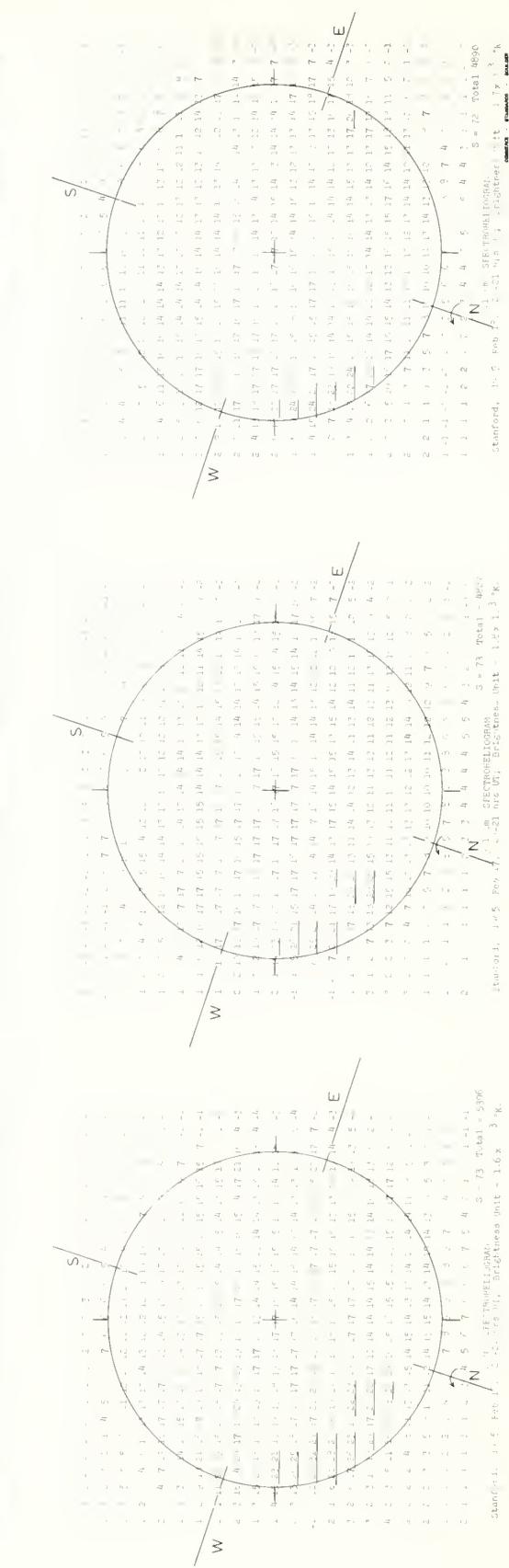
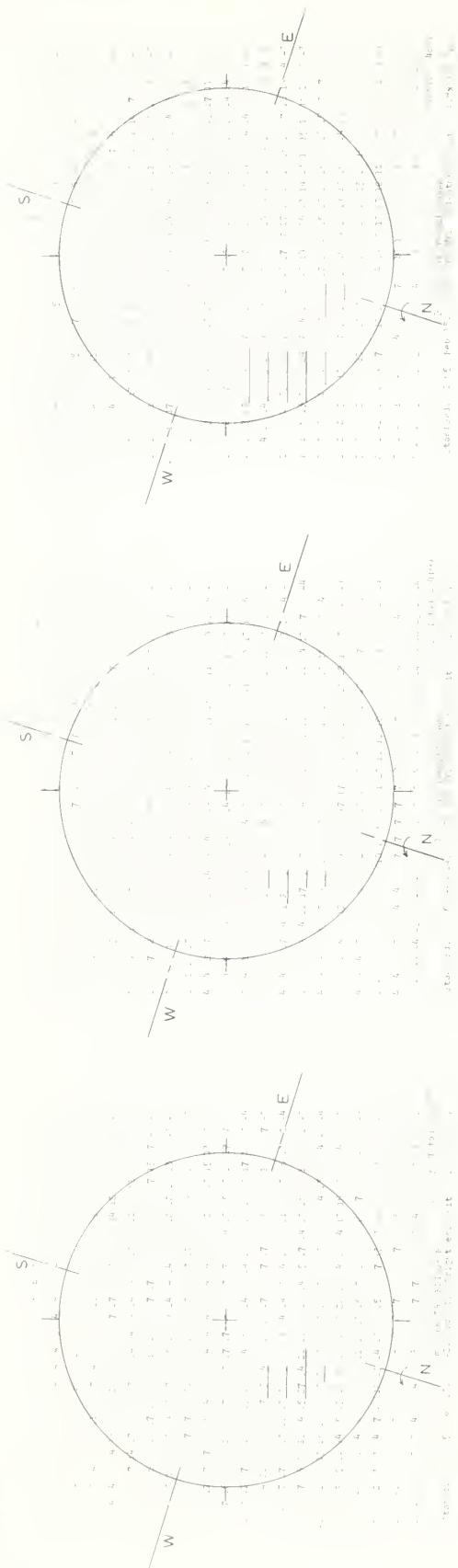
Stanford, 1965 Feb 09, 15:00 UT; Brightness Unit 1 for 10.3 %.

# SOLAR RADIO EMISSION SPECTROHELIOPHOTOGRAMS

FEBRUARY 1965

STANFORD

9.1 cm



Stanford, 15 Feb., 1965. SPECTROHELIOPHOTOGRAMS.

1.45 sec. per 1 cm. Brightness unit = 1.6 x 10<sup>-4</sup>.

Stanford, 15 Feb., 1965. GROWTH OF SPOT.

1.45 sec. per 1 cm. Brightness unit = 1.7 x 10<sup>-4</sup>.

## SOLAR RADIO EMISSION SPECTROHELIograms

FEBRUARY 196

STANFORD

9.1 cm

## SOLAR RADIO EMISSION SPECTROHELIograms

FEBRUARY 1965

STANFORD

9.1 cm



**COSMIC RAY INDICES**  
**(Neutron Monitors)**

JANUARY 1965

JAN. 1965	CHURCHILL	CLIMAX	DALLAS		
	DAILY COUNTS	AVERAGE PER HOUR	DAILY COUNTS	AVERAGE PER HOUR	DAILY COUNTS
1	6588.5	3377.2	6620.8		
2	6570.8	3378.1	6619.2 (18)		
3	6552.9	3380.5 (38)	6625.7		
4	6559.4	3369.3	6624.1		
5	6580.7	3363.3	6602.8		
6	6582.0 (19)	3364.2	6608.1		
7	6593.6 (23)	3376.0	6616.6 (23)		
8	6603.3 (22)	3379.0	6616.5		
9	6586.5 (21)	3367.4	6608.0 (20)		
10	6590.3 (22)	3359.1	6616.0		
11	6606.1	3368.4 (38)	6631.6		
12	6608.3	3370.3	6636.9		
13	6545.9	3362.0	6620.7		
14	6550.8 (23)	3352.1	6614.0		
15	6469.6 (22)	3307.7	6572.7		
16	6479.4 (23)	3311.4	6590.6		
17	6495.3 (23)	3324.8	6604.8		
18	6490.7 (23)	3323.7	6595.0		
19	6531.9 (20)	3332.2	6599.9		
20	6534.3	3353.7	6606.9		
21	6486.7	3332.1	6558.4		
22	6500.5	3348.3	6566.0		
23	6500.7	3353.2	6598.6		
24	6560.1	3360.4	6605.4		
25	6570.0	3374.1	6590.1		
26	6571.0	3357.1	6603.6		
27	6573.7	3347.9	6618.4		
28	6569.0	3357.3	6625.8		
29	6569.4	3360.0	6639.9		
30	6559.5	3357.7	6627.9		
31	6589.0	3361.8	6628.0		

COMMERCE - STANDARDS - BOULDER

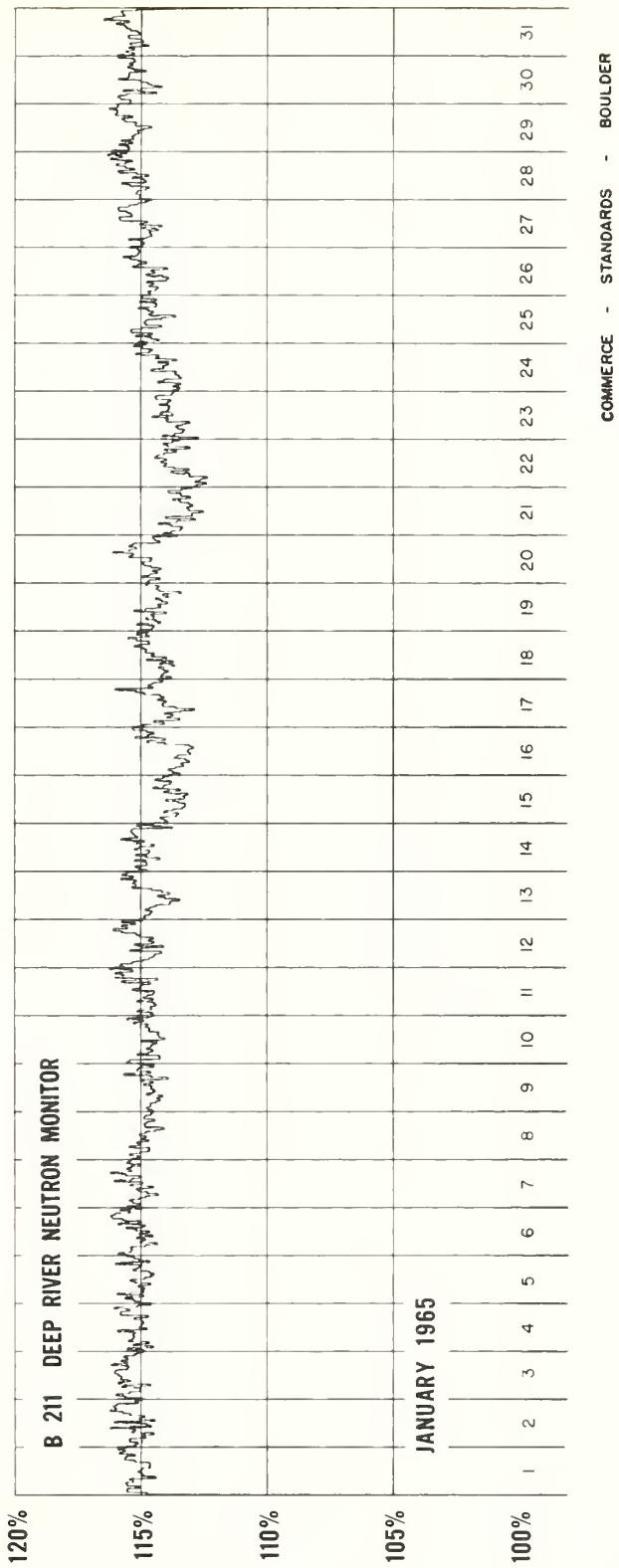
( ) Number of hours for which data are available if less than 24 (or number of section hours if less than 40 for Climax).

Churchill Super Neutron Monitor, Scaling Factor 120.

Climax IGC Station B305, Scaling Factor 128

Dallas Super Neutron Monitor, Scaling Factor 120.

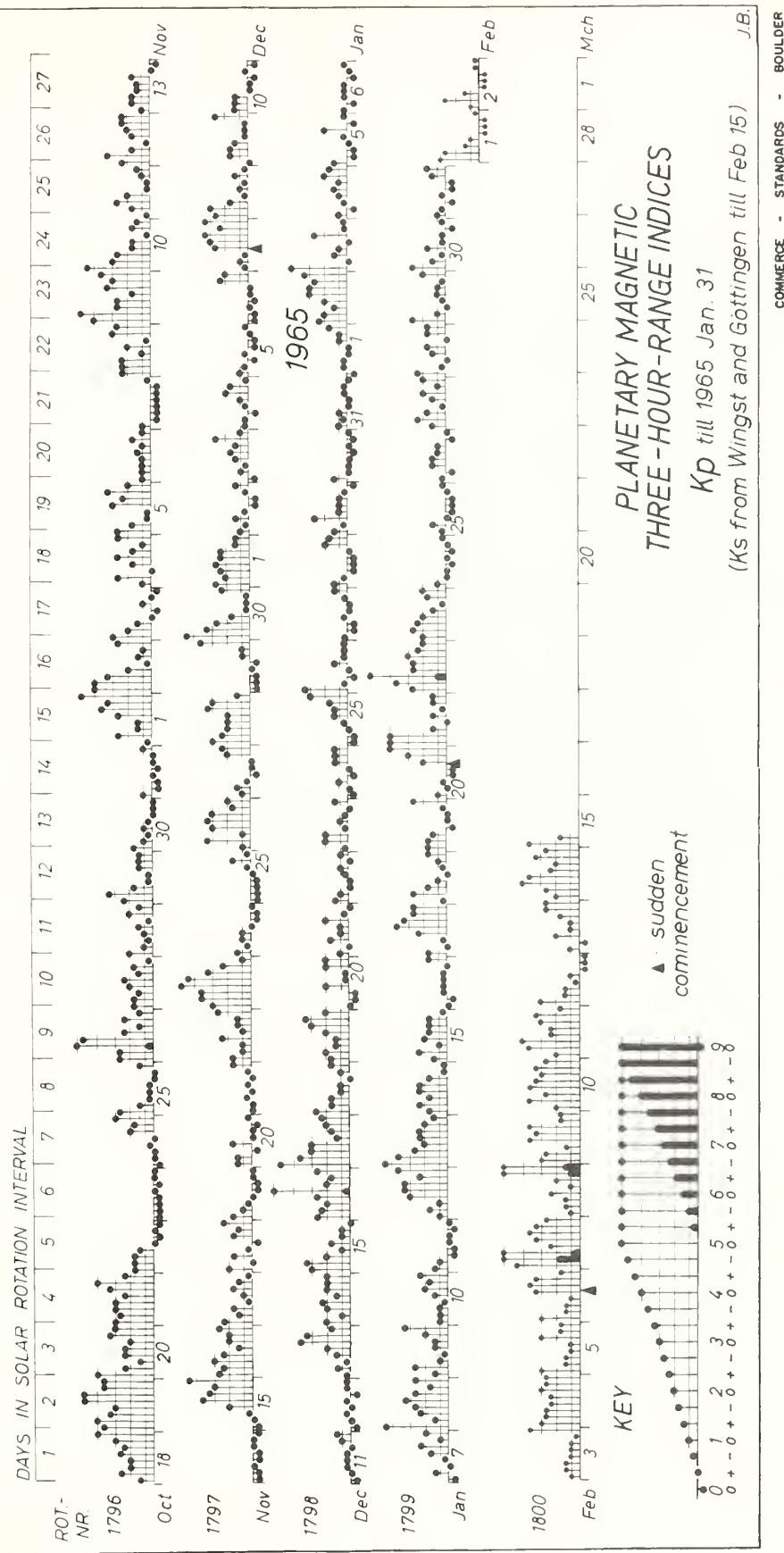
COSMIC RAY INDICES  
(Pressure Corrected Hourly Totals)



## GEOMAGNETIC ACTIVITY INDICES

JANUARY 1965

JAN. 1965	C	Values Kp								Sum	Ap	Final Selected Days			
		Three hour Gr. interval													
		1	2	3	4	5	6	7	8						
1	0.1	0o	1-	1-	0+	0+	1o	1o	2-	6-	3	Five			
2	0.8	2+	2o	1+	2o	3o	3o	3-	3+	20-	11	Quiet			
3	0.4	4o	0+	1+	1o	0+	3-	1-	1-	11o	7				
4	0.2	1o	0o	1-	1o	1+	1o	2o	2-	9-	4	6			
5	0.1	1+	0o	0o	0+	1-	2o	0o	1-	5o	2	11			
												16			
6	0.0	1-	0o	1-	1-	1-	0o	0+	1-	4-	2	24			
7	0.3	0o	1+	0+	1-	2-	2+	1o	2o	9+	4	25			
8	1.0	4+	1+	2+	3-	3+	3-	2-	3-	21o	13				
9	0.6	1+	3-	1o	1-	1+	1+	2o	3+	14-	7				
10	0.4	1o	1o	1o	1-	1+	2o	2-	2+	11o	5				
												12			
11	0.0	1+	1o	0o	0o	0+	0+	0o	0+	3+	2	Five			
12	0.8	1o	2-	1o	3o	3+	3+	2+	4-	19+	12	Disturbed			
13	0.7	4+	4-	3-	2o	2+	2+	2o	1+	21-	13				
14	0.3	2-	2+	2-	2+	2+	2-	1-	1-	13+	6	2			
15	0.3	1+	2+	1o	2o	2-	2-	2-	1-	12+	6	8			
												12			
16	0.0	0+	0o	1-	1-	1-	1-	0+	2-	5o	3	13			
17	0.8	2-	0+	1-	2+	4-	3+	3-	3-	17+	10	22			
18	0.3	1-	3-	2-	1o	0+	1-	1o	2-	10-	5				
19	0.2	2-	2-	1+	0o	0+	0+	1-	3-	9-	4				
20	0.6	1o	0+	1-	0o	0o	2o	3o	4o	11o	7				
												1			
21	0.8	4o	4o	1+	0+	1+	1-	1+	1+	14+	10	Ten			
22	1.2	3-	4-	6-	3-	3-	3o	2+	2o	25-	20	Quiet			
23	0.4	2o	3-	2+	2o	1+	1-	2-	2o	15-	7				
24	0.0	1o	0+	0+	0o	0+	0o	0+	1-	3o	2	4			
25	0.0	1-	1+	0+	0o	0o	0o	0+	1-	3+	2	5			
												6			
26	0.2	1-	0o	1+	1+	1o	1o	0o	0+	6-	3	11			
27	0.3	1+	2+	2-	1-	1+	2o	1o	2o	12+	6	16			
28	0.3	2+	1-	0+	1+	2-	0+	2-	2-	10o	5	24			
29	0.2	3-	1o	0+	1-	1o	1o	1-	2o	9+	5	25			
30	0.2	3-	1+	1-	2-	1-	1-	0o	1-	8+	4	26			
31	0.2	1o	1-	0o	1-	0o	0o	1+	2-	5+	3	31			
Mean:									Mean:		6				



NORTH ATLANTIC, NORTH PACIFIC

JANUARY 1965

JAN 1965	WHOLE DAY INDICES			ADVANCE FORECASTS (Jc- REPORTS) FOR WHOLE DAY	NORTH ATLANTIC				NORTH PACIFIC				GEOMAGNETIC INDICES									
	NORTH ATLANTIC	NORTH PACIFIC	AVERAGE HIGH LATITUDE		6 - HOURLY QUALITY FIGURES		SHORT-TERM FORECASTS ISSUED ABOUT ONE HOUR IN ADVANCE OF.		8 - HOURLY QUALITY FIGURES		KFR		AFR		KSI		ASI					
					00	06	12	18	00	06	12	18	03	11	19	TO	TO	TO	HALF (1)	DAY (2)		
1	6o	6	6	6	5+	6o	7-	6+	6	6	7	7	5	5	6	0	1	1	3	0	1	2
2	6o	5	6	6	6-	6-	7-	6-	6	6	7	6	5	5	6	2	2	9	3	2	2	8
3	6o	6	6	6	6-	5o	6+	6+	6	5	7	6	6	5	7	1	1	5	5	1	0	3
4	6+	6	6	6	6-	6-	7-	7-	6	5	7	6	5	5	6	1	1	2	5	0	1	3
5	6+	5	6	6	6-	6-	7-	7-	6	6	7	7	5	5	6	0	1	2	3	0	1	2
6	6o	5	6	6	6-	6-	7-	6+	6	6	7	6	6	5	5	1	1	2	3	1	0	2
7	6+	5	6	6	6o	6-	7-	7-	6	6	7	6	5	5	6	1	1	2	3	0	2	4
8	6o	5	6	6	6-	6o	7-	6+	6	6	7	6	5	5	6	2	1	7	3	2	2	11
9	6+	6	6	6	6o	6-	7-	6+	6	6	7	7	6	5	6	1	2	4	5	1	1	3
10	6+	5	6	6	6o	6-	7-	6+	6	5	7	7	5	5	5	1	1	3	5	0	2	3
11	6o	5	6	6	6-	5+	7-	7-	6	5	7	6	5	5	5	1	0	1	7	1	0	2
12	6o	5	6	6	6-	6-	7-	6+	6	6	7	6	5	5	5	2	3	9	11	1	3	12
13	6o	5	6	6	5+	6o	7-	7-	6	5	7	7	5	5	5	3	2	10	7	2	1	6
14	6+	6	6	6	6o	6-	7-	7-	6	6	7	7	6	5	6	2	2	5	5	2	1	5
15	6o	5	6	6	6o	5+	7-	7-	6	6	7	7	5	5	5	2	1	4	5	1	1	4
16	6o	5	6	6	6o	5+	7-	7-	6	6	7	7	5	5	6	1	1	2	3	1	1	3
17	6+	5	6	6	6o	6o	7-	7-	6	6	7	7	5	5	5	2	3	9	3	1	3	11
18	6o	6	6	6	6-	5+	7-	6+	6	5	7	7	5	5	6	2	0	4	3	1	0	3
19	6o	5	6	6	6o	5+	7-	6+	6	6	7	7	6	5	6	1	1	3	3	1	0	2
20	6o	5	6	6	6-	5o	7-	6+	6	5	7	6	5	5	6	1	2	7	3	0	2	4
21	6o	6	6	6	5+	5+	7-	7-	6	5	7	6	5	5	7	2	1	5	5	1	0	3
22	6-	6	6	6	6o	5-	6+	6-	6	5	7	6	5	5	6	3	2	11	5	3	2	19
23	6-	5	5	6	6-	4o	7-	6+	6	5	6	7	5	5	5	2	1	6	5	2	1	4
24	6-	5	5	6	5+	5o	6+	6+	6	5	7	7	5	5	6	0	0	0	3	0	0	0
25	6o	5	6	6	6-	5+	7-	6o	6	5	7	7	5	5	6	1	0	2	3	0	0	1
26	6o	5	6	6	6-	5+	7-	6+	6	5	7	7	5	5	6	1	1	2	3	0	0	1
27	6o	6	6	6	6-	6o	7-	6o	6	5	7	7	5	6	6	1	2	4	5	1	1	3
28	6+	6	6	6	6-	6o	7-	7-	6	5	7	6	7	5	6	1	1	4	3	1	1	2
29	6+	6	6	6	6o	6o	7-	6+	6	6	7	6	6	6	6	1	2	5	7	0	1	2
30	6+	6	6	6	6-	6-	7-	7o	6	6	7	6	5	6	7	2	1	3	5	1	0	2
31	7-	6	6	6	6+	6o	7o	7o	6	6	7	7	5	6	7	0	1	1	5	0	0	1
<b>SCORES</b>				<b>QUIET PERIODS:</b>	P 29				27 22 27 15													
					S 2				4 8 4 16													
					U 0				0 0 0 0													
					F 0				0 0 0 0													
<b>DISTURBED PERIODS:</b>				<b>PERIODS:</b>	P 0				0 0 0 0													
					S 0				0 1 0 0													
					U 0				0 0 0 0													
					F 0				0 0 0 0													

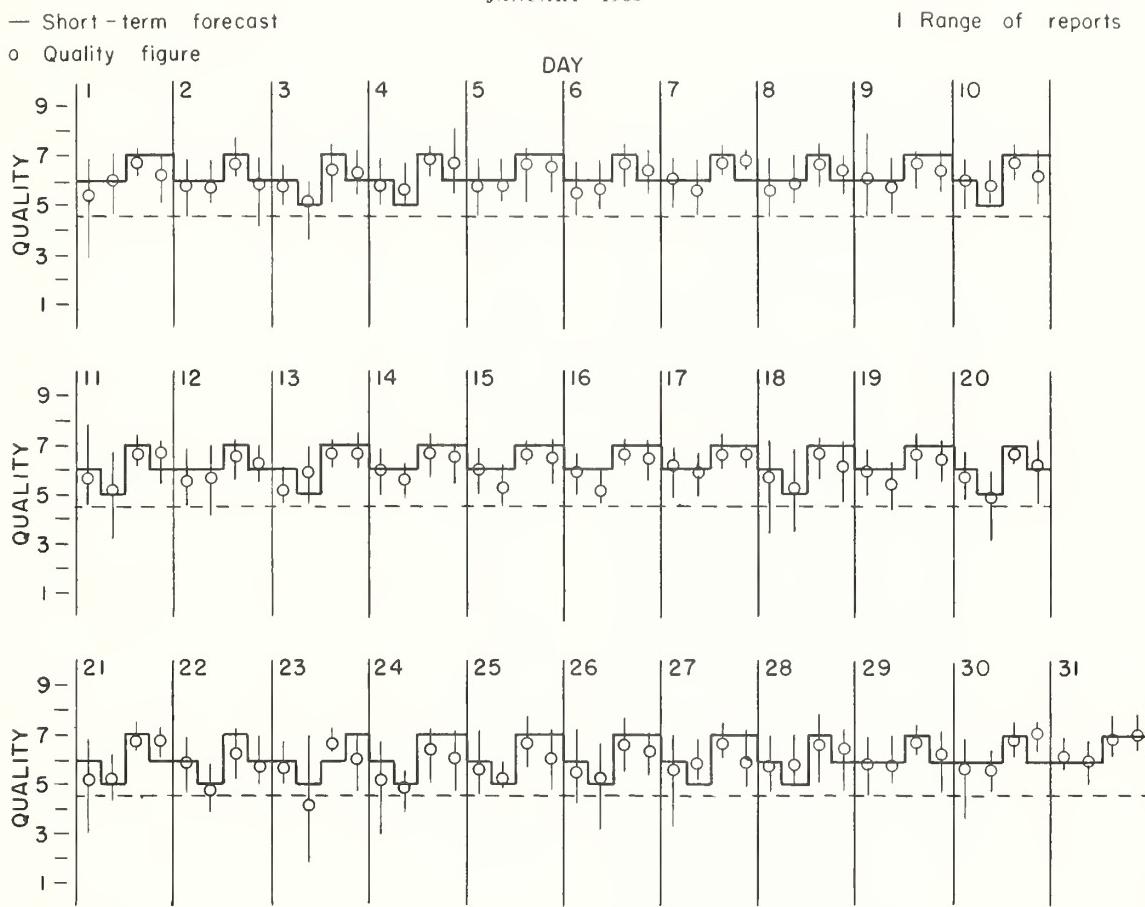
COMMERCE - STANDARDS - BOULDER

## NOTES:

1. The advance Jc forecasts are scored against the average high latitude whole day indices.
2. The observed indices for the North Pacific are low weight because of insufficient data available for their preparation.
3. The predicted A<sub>Fr</sub> indices are issued each Wednesday for the coming seven days. The value for the first day of each prediction period is underscored.

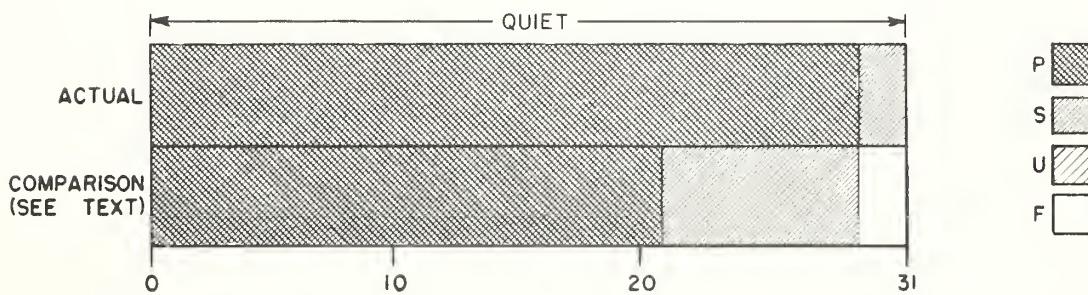
## NORTH ATLANTIC

JANUARY 1965

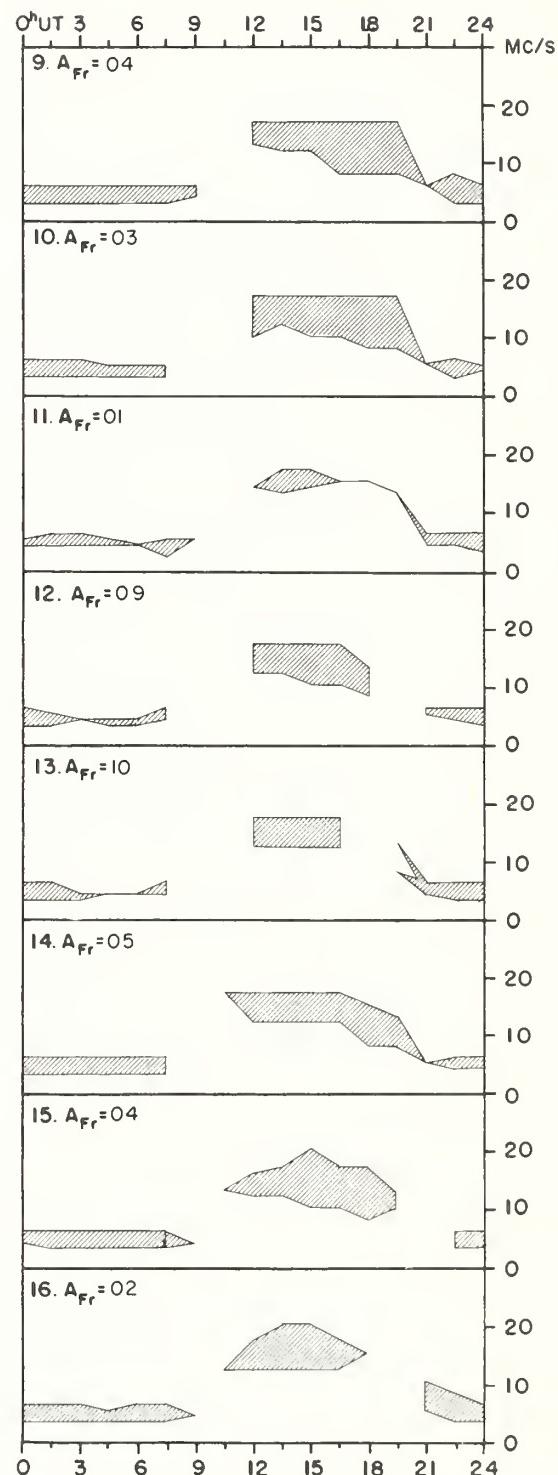
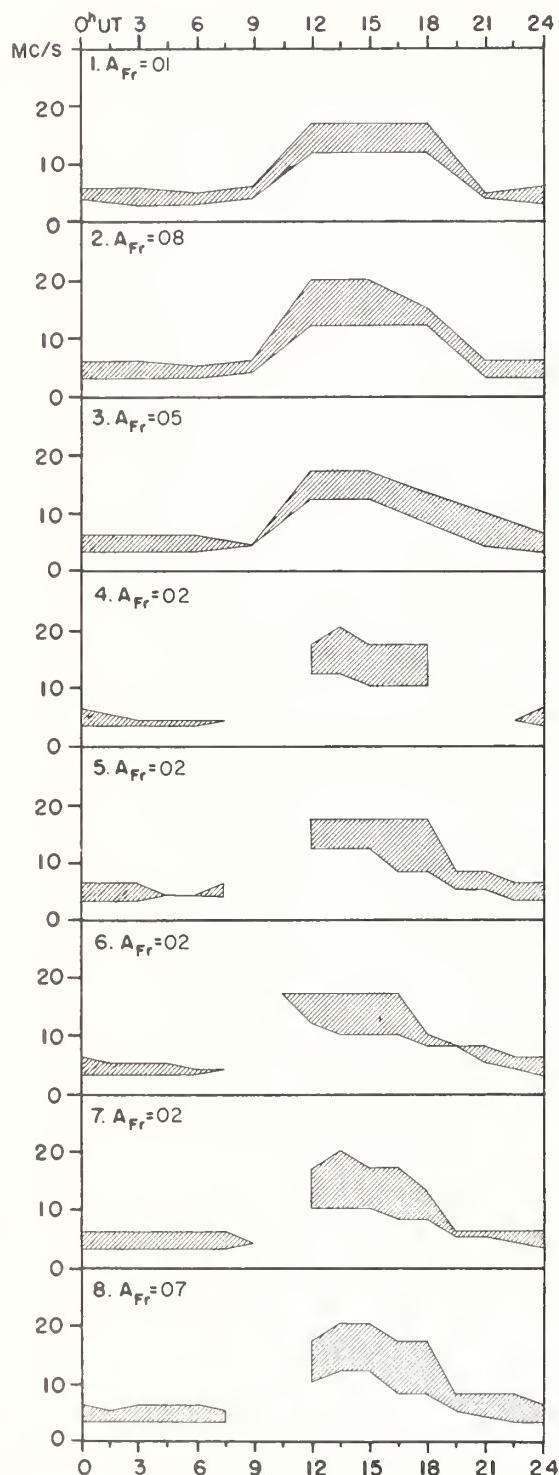


OUTCOME OF ADVANCE FORECASTS--FINAL ESTIMATES (1 TO 7 DAYS AHEAD)

## HIGH LATITUDE



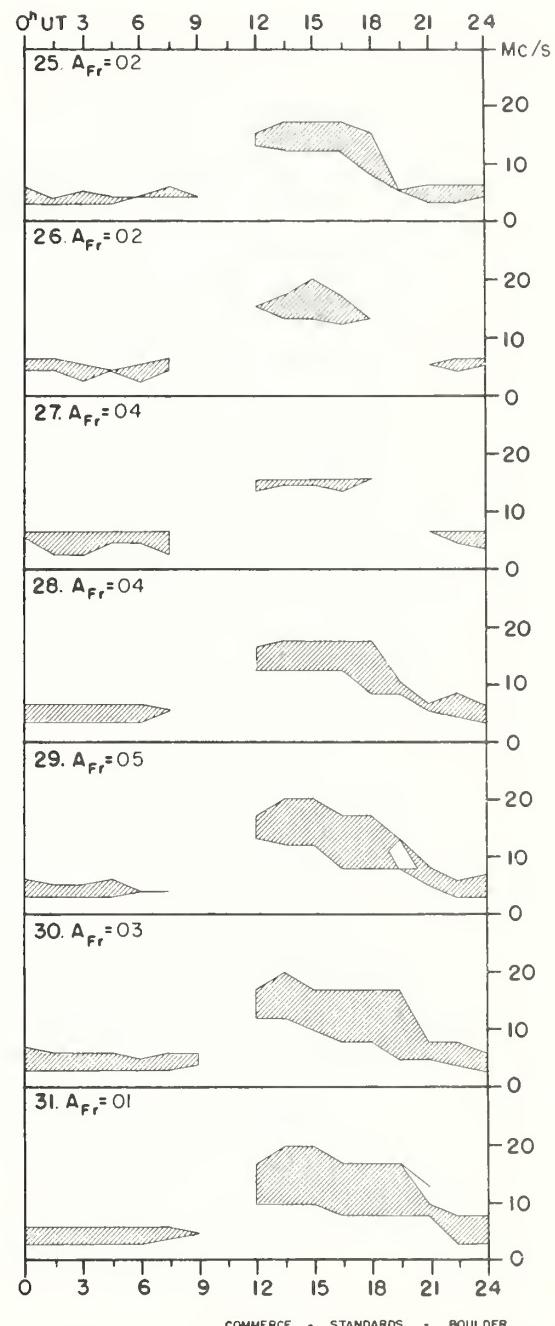
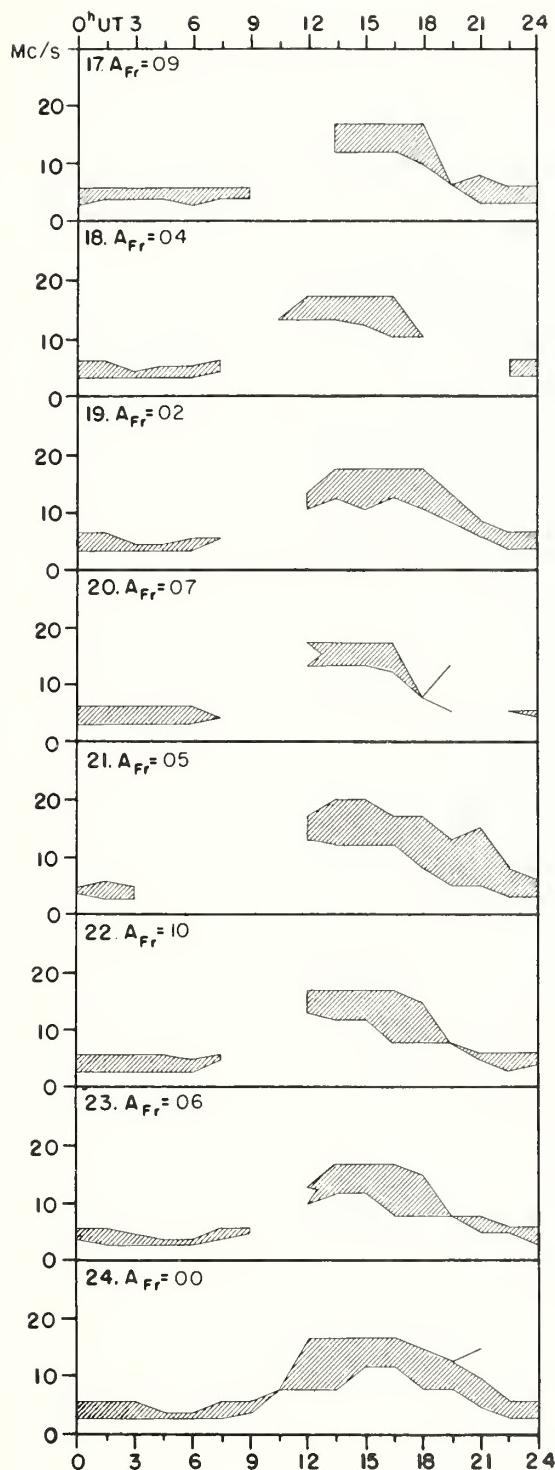
JANUARY 1965



# USEFUL FREQUENCY RANGES -- NORTH ATLANTIC PATH

VIIId

JANUARY 1965



COMMERCE - STANDARDS - BOULDER

Adapted from Observations by Deutsches Bundespost

## IQSY ALERT PERIODS

INTERNATIONAL URSIGRAM  
AND WORLD DAYS SERVICE

FEBRUARY 1965

FEB 1965	TIME OF ISSUE UT	ADVANCE GEOPHYSICAL ALERT	WORLDWIDE GEOPHYSICAL ALERT			
			NO.	TYPE	TIMING	ELABORATION
5	1840	Sac Peak, Solar Flare 05/1800Z	161	Solar Activity	Exists	
6	0400		162	Magnetic Storm	Expected	
7	0400		163	Solar Activity	Exists	
8	0400		164	Solar Activity	Exists	
9	0400					

COMMERCE - STANDARDS - BOULDER



